FRYINGPAN-ARKANSAS PROJECT, COLORADO

HEARINGS

BEFORE THE

SUBCOMMITTEE ON IRRIGATION AND RECLAMATION

OF THE

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS HOUSE OF REPRESENTATIVES

EIGHTY-THIRD CONGRESS

FIRST SESSION

ON

H. R. 236

A BILL TO AUTHORIZE THE CONSTRUCTION, OPERATION, AND MAINTENANCE BY THE SECRETARY OF THE INTERIOR OF THE FRYINGPAN-ARKANSAS PROJECT, COLORADO

JUNE 8, 9, AND 10, 1953

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FRYINGPAN-ARKANSAS PROJECT, COLORADO

MONDAY, JUNE 8, 1953

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION OF THE
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Washington, D. C.

The subcommittee met, pursuant to call, at 9:45 a. m. in the committee room, New House Office Building, Hon. Norris Poulson (chairman) presiding.

Mr. POULSON. The Subcommittee on Irrigation and Reclamation of the Committee on Interior and Insular Affairs will now come to order.

We have before us H. R. 236, known as the Fryingpan-Arkansas project, introduced by our colleague, Mr. Chenoweth.

The bill will be made a part of the record at this point.

(H. R. 236 is as follows:)

[H. R. 236, 83d Cong., 1st Sess.]

A BILL To authorize the construction, operation, and maintenance by the Secretary of the Interior of the Fryingpan-Arkansas project, Colorado

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, for the purpose of supplying water for irrigation, municipal, domestic, and industrial uses, generating and transmitting hydroelectric power and energy, controlling floods, providing for the preservation and propagation of fish and wildlife and preserving and improving recreational opportunities, and for other useful and beneficial purposes, the Secretary of the Interior, acting pursuant to the Federal reclamation laws, Act of June 17, 1902 (32 Stat. 388), and Acts amendatory thereof or supplementary thereto, as far as those laws are not inconsistent with the provisions of this Act, and subject to the apportionments of the use of water fixed in the Colorado River Compact and the Upper Colorado River Basin Compact and to the terms of the Boulder Canyon Project Act, and to the terms of the United States-Mexico Water Treaty of 1944 (Treaty Series 994), is hereby authorized to construct, operate, and maintain the Fryingpan-Arkansas project, Colorado, in substantial accordance with the engineering plans therefor set forth in Senate Document Numbered 106, Eighty-second Congress, second session, but with such modifications of, omissions from, or additions to the works therein described as the Secretary may, from time to time, find necessary or proper for accomplishing the objectives of the project, and in accordance, also, with recommendations lettered E to K, inclusive, set forth on pages 25 and 26 of that document.

SEC. 2. The Secretary of the Interior may appoint the two representatives of the United States to the Commission referred to in paragraph 17, page numbered 23, Senate Document Numbered 106, Eighty-second Congress, second session, and may adopt modifications of the operating principles therein referred to upon the recommendations of the Commission: *Provided*, That such recommendations are made and adopted by said Commission in conformity to the provisions of paragraph 17 of said operating principles set forth on page 23 of Senate Document Numbered 106, Eighty-second Congress, second session.

SEC. 3. Any and all benefits and rights of western Colorado water users in and to water stored in the Green Mountain Reservoir, Colorado-Big Thompson project, as described, set forth, and defined in Senate Document Numbered 80,

Seventy-fifth Congress, first session, shall not be impaired, prejudiced, abrogated, nullified, or diminished in any manner whatever by reason of the authorization, construction, operation, and maintenance of the Fryingpan-Arkansas project authorized by this Act.

SEC. 4. Any provision of law to the contrary notwithstanding, the project herein authorized shall be operated in such a manner that those in eastern Colorado using project water imported from the Colorado River Basin for domestic purposes shall have preference over those claiming or using the water for any other purpose.

SEC. 5. The Secretary is authorized to plan, construct, operate, and maintain public recreational facilities on lands withdrawn or acquired for the development of the Fryingpan-Arkansas project, to conserve the scenery, the natural, historic, and archeologic objects, and the wildlife on said lands, and to provide for public use and enjoyment of the same and of the water areas created by these projects by such means as are consistent with the primary purposes of said project and to mitigate losses of and improve conditions for the propagation of fish and wildlife in connection with the development of the Fryingpan-Arkansas project. The Secretary is authorized to acquire lands and to withdraw public lands from entry or other disposition under the public land laws for the construction, operation, and maintenance of recreational facilities in connection with the said project, and to dispose of them to Federal, State, and local governmental agencies by lease, transfer, exchange, or conveyance, upon such terms and conditions as will best promote their development and operation in the public interest. The costs, including the operation and maintenance costs of all said undertakings shall be nonreimbursable and nonreturnable under the reclamation laws, and funds appropriated for carrying out the authorization contained in section 1 of this Act shall, without prejudice to the availability of other appropriated moneys for the same purpose, also be available for carrying out the investigations and programs authorized in this section.

SEC. 6. There are hereby authorized to be appropriated, out of any moneys in the Treasury not otherwise appropriated, such sums as may be necessary to carry out the purposes of this Act and, in addition thereto, such further sums as may be necessary for the continued investigation, as set forth in Recommendation M, page 26, Senate Document Numbered 106, Eighty-second Congress, second session, of a comprehensive plan of development of the Upper Arkansas River Basin.

Mr. POULSON. H. R. 236 would authorize the Fryingpan-Arkansas project, a multiple-purpose development in southeastern Colorado.

The project involves transmountain diversion of water across the Continental Divide from the Roaring Fork River, which is a tributary of the Colorado on the western slope, eastward to the upper Arkansas, a tributary of the Mississippi.

On the basis on January 1953 price levels the estimated capital cost is $172,898,000, so that the project we have under consideration is one requiring very careful examination.

In keeping with policy declarations of the present administration calling for close cooperation between Federal agencies and local agencies, it is our feeling that the present hearings should develop clearly the position and attitude of groups and individuals from the local area involved.

We do not intend at the outset to hear at length witnesses from the Department of Interior and the Department of Agriculture.

There is one other point that should perhaps be made clear and that has to do with the interrelationship of the lower Colorado River area of Arkansas and California with this project. As committee members are probably aware, under existing compacts the dividing line between the upper Colorado and the lower Colorado is fixed at Lee's Ferry, Ariz. So long as upper Colorado use provides for delivery of specific amounts of water at Lee's Ferry, Ariz., the problem of Arizona and California demands is not directly raised by this

legislation; I believe that that should be kept in mind during these hearings.

There is in H. R. 236, in addition to the general feasibility and proposed accomplishments of this project, the question of diverting water from the upper Colorado watershed to the upper Arkansas watershed. It is our understanding, and this point should be developed further, that as we commence these hearings, compacts have been developed between the upper Colorado area in the west and the upper Arkansas area in the east.

Mr. D'EWART. Mr. Chairman, would you yield to me before we start?

Mr. POULSON. Yes.

Mr. D'EWART. It is my understanding that this is the last time that our colleague, Mr. Poulson, will act as chairman of the Subcommittee on Irrigation and Reclamation. I have served with him over several years on this subcommittee and the other subcommittees of the Interior and Insular Affairs Committee. I want to take this opportunity to express my appreciation for his courtesy and kindness and help in measures in which I have been interested.

I have always admired his courage, his integrity and his industry. I think those three things stand out in Mr. Poulson more than anything else. We are going to miss him greatly on this committee because he has a wide knowledge of irrigation matters. We are going to miss his help in getting fair and equitable consideration of legislation that comes before this committee.

I want to on my own behalf wish him every success and pleasure in his future undertakings in the services of the city of Los Angeles and his State.

Mr. SAYLOR. Will the gentleman yield to me?

Mr. D'EWART. Yes.

Mr. SAYLOR. I would like to join my colleague from Montana in expressing to our colleague, Mr. Poulson, our sincere best wishes for him in his new undertaking. What is Los Angeles' gain is a loss not only to the committee but to the Congress of the United States.

It has been my pleasure to serve with Mr. Poulson ever since I have been a Member of Congress, and everything that Mr. D'Ewart has said about him is true. He is respected not only on his own side of the aisle but by all Members of Congress. He has an unusual knowledge of the affairs not only of irrigation but of all matters which ever came before this committee.

It is important to note that he did not confine his interests in legislation just to matters which were before our committee, but he was interested in all legislation, and particularly that which might affect his own home State.

While we wish him well, it will be with a deep sense of personal loss that Norris Poulson will no longer be a member of this committee.

Mr. HARRISON. Will the gentleman yield to me?

Mr. SAYLOR. Yes.

Mr. HARRISON. I want to join with my colleagues in what they have said about Norris Poulson. It has been a great deal of pleasure to me to serve on the committee with Norris Poulson in the last 2 years.

Mr. D'Ewart said, "Norrie has the courage of his convictions. He has fought for those things he believed in against those things he

did not believe in, and he has done a magnificent job here on the committee and in Congress. I know that we are going to miss him very badly, but we are sure that he will make a marvelous record in his new job."

Mr. BERRY. Will the gentleman yield to me?

Mr. HARRISON. Yes.

Mr. BERRY. I just want to join, as a comparatively new member on this committee in the remarks of my colleagues.

When I came on the committee I probably got more help from Norris Poulson than anyone in learning what the duties and responsibilities of the committee were. He is a grand person, a careful student, and I know that we are going to miss him. But as the gentleman from Pennsylvania said, "What is our loss is Los Angeles' gain."

Mr. PILLION. Mr. Chairman, I would like to add my good wishes to our mayor and hope that he will receive the cooperation from the members of the common council of that great city that he has received from members of this committee, and he will be all right. He will not have any troubles after that.

Mr. ENGLE. Mr. Chairman, we do not want this laudatory praise to come from one side of this committee. The last trip our chairman made as a member of the Committee on Interior and Insular Affairs was with me and Jim Carr, our consultant, into the northwestern part of the United States, out into Colorado, and especially out to see the Fryingpan-Arkansas project. So I think it is appropriate that inasmuch as this is the last time our colleague Norris Poulson will preside at this hearing for this subcommittee, that he is presiding at the first hearing on the Fryingpan-Arkansas project, on which we spent several days last fall with our colleague Wayne Aspinall of Colorado.

I have already said many times what I think of Norris Poulson. I think perhaps we are being a little sad about it. He is not really dying, he is being promoted.

Mr. SAYLOR. That is a matter of opinion. [Laughter.]

Mr. ENGLE. And I am sure he is going to do just as well in his new job as he has in the old one. And those on this side of the committee certainly wish him lots of luck and a great deal of success.

As his very close associate on this committee, I am probably going to miss him more than anybody else.

Mr. ASPINALL. Mr. Chairman, I would join with the others of our colleagues. Congressman Engle might have been his very close associate, but I am sure as far as this committee is concerned I have been one of his closest social associates, and I will miss our canasta games more than anything else that I can think of.

I do wish to thank you very much for your consideration of all matters, not only this but to reclamation in the West particularly. I know you will make a good mayor and wish you Godspeed as you go to your new position.

Mr. POULSON. Thank you, gentlemen, for those nice things you have said. I think it fortunate for the clerk and for the advocates of the legislation which is before us that we do not have any more members here or we would be taking up all of the time.

Off the record.

(Discussion was had outside the record.)

Mr. ASPINALL. Mr. Chairman, as you begin to call the witnesses, the last statement in your introductory remarks I think should have a little clarification. There is no compact agreement between western Colorado or the upper Colorado River Basin and the Arkansas Valley. We have reached some kind of an agreement as far as the Colorado Conservation Board is concerned, but it is not in the form of a compact and the record should be made to show that, because there is some disagreement that will be apparent in these hearings.

Mr. POULSON. Thank you, Mr. Aspinall, for clarifying that statement. As you stated also, in the matters which will be brought up in the discussion of this bill, some very important policy matters are involved which will be of great interest to all the people receiving water from the Colorado River, and I am sure all of the existing controversies will be brought out.

Our first witness is probably one of the most persistent advocates of this project that I have ever seen on any type of legislation. Every time you turn around you find Judge Chenoweth, or Ed, as we call him, looking for you around the corner to find out when you are going to hold hearings, to get further information, and to continue to press for the passage of this bill. So Ed, will you now present your case before the committee?

STATEMENT OF HON. J. EDGAR CHENOWETH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO

Mr. CHENOWETH. Thank you, Mr. Chairman and members of the committee.

I hope you will indulge me just for a moment so that I may join my colleagues on the committee here in the tribute that they have paid you, Mr. Chairman. I am sure that every witness who is here from Colorado today would want me to express his very best wishes to you as you take up your new duties and very important responsibilities as mayor of the great city of Los Angeles. I am sure that they would want me to also express their appreciation to you for the many courtesies which you have extended to them, and that they would want me to express their deep gratitude for your consideration of this project. We appreciate your kindness in arranging this hearing today.

I might state, Mr. Chairman, I always had the impression that the greatest compensation for being in public life is the friendships and associations that you make. I know that you are going to carry back to Los Angeles some very rich memories of your association with the Members of this House, and I know that you are going to leave very pleasant memories in our minds upon both sides of the aisle.

Mr. POULSON. Let me say, Ed, I do not believe one could find a better collection of gentlemen than the membership of this Interior and Insular Affairs Committee. I hate to leave all my colleagues in the House, but to the boys on this committee I can say that it is just like leaving some of your close relatives.

Mr. CHENOWETH. I want to personally say, Mr. Chairman, it has been a great pleasure to serve in the House with you and my life is richer because of my association and contacts with you, and always will be. Thank you very much.

I would like to read just a very brief statement here, Mr. Chairman, and make just a brief comment or two.

Mr. Chairman and members of the committee, I wish to thank you for holding this hearing on H. R. 236, a bill I have introduced authorizing the construction of the Fryingpan-Arkansas project in Colorado. This project provides for the transmountain diversion of surplus water from the Colorado River Basin in western Colorado to the Arkansas River Valley in eastern Colorado. The transmittal letters and full details of the project are contained in Senate Document 106, 82d Congress, 2d session. A companion bill, S. 964, has been introduced in the Senate by Senators Millikin and Johnson of Colorado.

I would like to just say at this point, Mr. Chairman, that some of you have personal knowledge of this project, including the location and the site. We greatly appreciated your visit last fall in company with Mr. Engle, who at that time was the chairman of this subcommittee, and is now the ranking minority member. I think that you had the opportunity to see for yourselves just what this project is by inspecting the location and observing the intense interest that is manifested in the project.

The water involved in this project rises in the Fourth Congressional District, so ably represented in the House by my colleague from Colorado, Mr. Aspinall, and of course he is familiar with the details of the project. I am sure that as the witnesses from Colorado present their testimony, each member of the committee will be able to visualize just what this project calls for.

Mr. Chairman, I desire to make a very brief introductory statement concerning this project, the various phases of which will be fully explained by technical and expert witnesses who are here from Colorado in support of this legislation. I am anxious for the committee to know something of the background of this project and the vast amount of study and planning the same has received over a period of many years. I also want to be sure the committee is aware of the intense interest in this project in Colorado, due to the desperate need for additional water in the area to be served.

This project has been under discussion in Colorado for more than 20 years. The Bureau of Reclamation has been making studies and surveys for over 10 years. I can assure the committee that this project is before you after the most exhaustive investigations and planning. This hearing today is the culmination of the dreams and efforts of many persons, both in and out of the Government, who have devoted unsparingly of their time and energy in order to make this project a reality. Included in our group of witnesses are officers and directors of the Water Development Association of Southeastern Colorado, which organization has sponsored this project.

This project has had the official approval of two administrations. The project report was first approved by Oscar L. Chapman, then Secretary of the Interior, on May 4, 1951. After obtaining the necessary approval of the several States and Government agencies the report was submitted to the Bureau of the Budget on October 17, 1951. When the Eisenhower administration took office in January of this year the report was returned to the Department of the Interior for the recommendations of the new Secretary. On April 28, 1953, the report was again approved by Mr. Douglas McKay, Secretary of the Interior, and returned to the budget.

This project has the unanimous approval of the Colorado Water Conservation Board, which expresses the official attitude of Colorado on water matters. Under the supervision of this board an operating agreement was worked out between the water users of the western and eastern slopes of Colorado. Several members of this board are here today, coming from all sections of Colorado, as well as the consulting engineer and the legal adviser to the board, who will fully explain the necessity for this project.

This is a multiple-purpose project. In addition to making supplemental water available for irrigation, it will provide water that is badly needed for domestic purposes.

Several cities and towns in my district, including Pueblo, the second largest city in Colorado and the industrial center of our State, are in dire need of additional water, which can only be obtained through this project. The project also provides for flood control and for the development of hydroelectric energy. Several REA cooperatives are looking to this project for the additional power necessary to properly serve their areas.

Mr. Chairman, and members of the committee, I cannot emphasize too strongly the urgent need for this project. We feel that we have a good project and one that deserves your favorable consideration. I hope this bill will be favorably reported to the House.

Mr. Chairman, there is a slight change in the order of witnesses which was given to the clerk of the committee, and Mr. Lineweaver will make a statement relative to the appearance of the witnesses from the Bureau of Reclamation.

Mr. ASPINALL. Mr. Chairman, before our colleague leaves the witness stand, I wish to make one observation and one statement. My colleague has referred to the fact that this project provides for the transmountain diversion of surplus water from the Colorado River Basin in western Colorado. Now I am not sure that my colleague would be willing to go on record before this committee that there are surplus waters at the present time in western Colorado for transmountain diversion. In other words, that is not a statement of fact, that is a statement of what this project is based upon.

Mr. CHENOWETH. I would like to state to my distinguished colleague that there is no intention on the part of the eastern slope water users to take any water which is now being used for beneficial purposes on the western slope. Now I base my statement, Mr. Aspinall, on the fact that an operating agreement was reached between the water users of the two areas so far as this particular diversion was concerned. I am assuming that the surplus water is available, otherwise, no agreement would be reached.

Mr. ASPINALL. I want that distinctly understood by the committee, because one of the best students that we have of western Colorado water resources in western Colorado is Mr. Silmon Smith, who states that the western slope is already overappropriated and that there is no water present there for transmountain diversion. So that the committee has a definite understanding that that question is involved at the same time as we study the economics and the feasibility of this project, it is absolutely necessary to understand that.

Mr. CHENOWETH. I am sure there is no intention, Mr. Aspinall, on the part of the eastern slope water users, as I said, to take water which is being used on the western slope.

But I am assuming that after the Colorado Water Conservation Board, which speaks officially for Colorado in water matters, has unanimously recommended this project and the members from the western slope on that board have given their approval, that this action would establish the fact this amount of water is surplus to the needs of the western slope.

Mr. ASPINALL. That is right, and as I understand, all of those associated with you in this project are of the same opinion.

Mr. CHENOWETH. Yes.

Mr. ASPINALL. And if there are no waters in the necessary amount of surplus, then the people of eastern Colorado do not wish to hamper the development of western Colorado.

Mr. CHENOWETH. That is absolutely correct.

Mr. ASPINALL. That is my sole purpose. And I want the committee to understand that the whole project is based upon the assumption there are additional waters called surplus waters.

Mr. CHENOWETH. Yes, sir.

Mr. ASPINALL. All right.

Mr. CHENOWETH. There are surplus or excess waters to the needs of the western slope. I submit this is definitely established by the fact the water board unanimously recommended this project.

I know Mr. Smith, who is a good personal friend of mine. I know he has been very active in water matters, but I think there would be a very sharp conflict with his opinion that the water is overappropriated in that area because I cannot believe the members of the Colorado Water Conservation Board would sit idly by and permit any water to be taken away from the western slope which was being used for beneficial purposes.

Mr. ASPINALL. Mr. Smith was a member of the Colorado Water Conservation Board himself for many years.

Mr. CHENOWETH. Yes, I know.

Mr. Chairman, I want to again express my appreciation to the committee for this opportunity to be heard and to present our story of this project, and to thank you for the many courtesies you and Mr. Engle and every member of the committee have always extended. I hope you will forgive me if I have been unduly insistent. I was trying to do my best to impress upon you the importance of the project to the people of Colorado.

Mr. POULSON. I just wanted to call to the attention of the people here how you are on the job, and to say that is your duty. And I think the rest of the members know I work likewise for Southern California. You are just performing your duties.

Mr. CHENOWETH. Thank you very much, Mr. Chairman.

Mr. Lineweaver will make a brief statement concerning the project.

STATEMENT OF GOODRICH W. LINEWEAVER, ASSISTANT COMMISSIONER, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR

Mr. LINEWEAVER. Mr. Chairman, I am instructed by Assistant Secretary Aandahl to advise the committee that he proposes to have tomorrow morning a letter from the Director of the Budget showing the relationship of the Fryingpan-Arkansas project, and a report on this bill, to the program of the President. This was worked out in a series of conferences the latter part of last week, and the material

is now being put in form. Under those circumstances, I believe the arrangement is that witnesses for the Bureau of Reclamation and the Department testifying on this bill will follow the statement that Governor Aandahl expects to make tomorrow morning.

Mr. Chairman, may I divert from this bill just for a moment——

Mr. ASPINALL. Mr. Chairman, may I ask a question there? As we get our report from the Bureau of the Budget, do I understand that it is to be hoped that we have a restatement or a statement in place of A–47 under publication date of December 31, 1942, setting forth the standards by the administration which are to be adhered to in relation to such projects as this?

Mr. LINEWEAVER. Mr. Aspinall, I am not advised as to what the report will state with reference to Budget Circular A–47. As I understand it, Secretary Aandahl's report and statement to the committee will relate primarily to the Fryingpan-Arkansas report and to the pending legislation.

Mr. ASPINALL. Mr. Lineweaver, it is impossible for this committee to properly consider this bill that is now before us unless we have a definite statement on many policies which this administration must make on such legislation. Is that correct? I do not wish to put the witness on the spot relative to his relationship to this committee, but I do wish to know just exactly what we can expect at this late hour from the Bureau of the Budget. I want to know whether we are just going to get a "yes" or "no" answer for the Fryingpan-Arkansas project, or whether we are going to get a definite statement on several policy matters which are heretofore lacking.

Mr. LINEWEAVER. I would say, Mr. Aspinall, that not having seen the comments of the Bureau of the Budget or the final report of the Department, I am not in a position to forecast just what will be contained in either one or both of these reports. I would suggest that when Secretary Aandahl appears before the committee tomorrow morning, as he hopes, if the committee will indulge him, perhaps some of your questions will be answered. I am not in a position to say just how far the report and information will go.

Mr. ASPINALL. Thank you very much. I hope all of my questions are answered. We have been waiting some time.

Mr. D'EWART. We have been waiting several years, I think it is fair to say, for some of it.

Mr. SAYLOR. Mr. Lineweaver, I would like to ask just a question.

Mr. LINEWEAVER. Yes.

Mr. SAYLOR. In accordance with the figures which have been submitted to the committee by the Bureau of Reclamation last week, it is my understanding that on the basis of January's cost, 1953, the total capital cost of this Fryingpan-Arkansas project is now estimated to be $172,898,000. Is that correct?

Mr. LINEWEAVER. That is correct, yes, sir.

Mr. SAYLOR. Now on behalf of this committee, I would like to have a comparison made and presented to us of the present figures—in view of the fact that on March 6, 1952, Senator Millikin had printed a report and letter under Senate Document No. 106 of the 82d Congress, 2d session, which shows on page 25 a tentative allocation of the total cost of the project to be $147,440,000, I would like for the benefit of this committee for you to show the comparison on the various items that have gone into this increase.

Mr. LINEWEAVER. Yes, sir; we will make that comparison and reconciliation, Mr. Saylor, and we will have it available tomorrow. Mr. Powell, who is the area engineer, will be a witness following Governor Aandahl's appearance tomorrow morning and will have that comparison and reconciliation available for you.

(COMMITTEE NOTE: The cost comparison is as follows:)

FRYINGPAN-ARKANSAS PROJECT COST COMPARISON

The cost estimate has been raised from $147,440,000 (October 1949) to $172,898,000 (January 1953) by using unit costs for construction items prevailing as of January 1953, and further by changing the contingencies and other items as indicated in the following table.

	October 1949 estimate	January 1953 estimate
Estimated construction cost	$102,244,270	$114,625,598
Contingencies:		
Percent	22.5	22.6
Amount	$22,985,430	$26,236,402
Field cost	$125,230,000	$140,862,000
Construction facilities:		
Percent	1.22	2.25
Amount	$1,521,900	$3,171,000
Investigations, designs, supervision, and surveys:		
Percent	13.2	15.4
Amount	$16,558,000	$22,881,200
General expense:		
Percent	2.7	2.5
Amount	$3,419,000	$3,503,800
General service equipment		1,053,000
Constructed features (CBT)		1,427,000
Noncomparable 1949 costs:		
Dillon interconnection	100,000	
Limon interconnection	75,000	
O. and M. during construction	536,000	
Total cost	147,440,000	172,898,000

Mr. SAYLOR. Then I would like to have, in addition to that, your analysis of the various items that are broken down to make up this total, to show what items will bear interest and when interest will begin to run to the various items.

Mr. LINEWEAVER. Yes, sir.

Mr. SAYLOR. Of course, there will be some items in this that are without interest.

Mr. LINEWEAVER. That is correct, sir.

Mr. SAYLOR. We would like to have each item reflected showing what items bear interest and when interest will start.

Mr. LINEWEAVER. Yes, sir.

Mr. PILLION. Are there varying rates of interest, Mr. Saylor?

Mr. SAYLOR. That is one of the reasons I have asked, because in figuring the original items there were varying rates of interest used.

Senate Document 106 shows that in arriving at the total of $147,440,000 various rates of interest were applied to various aspects of the project.

Mr. LINEWEAVER. Yes, sir, we will have that information when Mr. Powell takes the stand tomorrow following Governor Aandahl's statement, and at the pleasure of the committee of course.

Mr. SAYLOR. Mr. Lineweaver, is the engineering report on this project presently available?

Mr. LINEWEAVER. Yes, sir, that will be covered by Mr. Powell's statement. It will be brought up to date. He advises me that he

has nothing of an engineering character beyond the report in Senate Document 106.

He states that he will give the complete statement on each and every one of the items in Senate Document 106 reconciled and brought up to date on the basis of the January 1953 report.

Mr. SAYLOR. Very good.

Mr. LINEWEAVER. Mr. Chairman——

Mr. POULSON. Before you start out, I would like to say this: I would like to give what we always called bureaucrats, and now call the administration boys, the surprise of their life by saying, that after all, they are a nice bunch of fellows. I am leaving with the highest regard and finest feeling for all of you.

Mr. LINEWEAVER. Thank you, Mr. Chairman.

May I say on behalf of the bureaucrats, or whatever you want to call us, or ex-bureaucrats, our relationship with you personally has been very pleasant, and while you have taken us over the jumps a good many times, we have always felt your objectives were sound, and we have always endeavored to come up with the answers. Some of them, of course, have not always been satisfactory to you, and maybe some of your comments have not always been pleasing to us. But nevertheless, we felt, and I have personally, that we could sit down and talk to you and maybe try to clarify things, and you have always been willing to give us a hearing, which is perhaps the most important thing, after all, whether you agree with us or not.

I recall, Mr. Chairman, for the benefit of the other members of the committee, a little trip we made out in Dr. Miller's country out in Mirage Flats, when you some way or other got lost out in Dr. Miller's district, and you came very near running us into a storm by delaying the plane. But, of course, we forgave you for that, and we had a very pleasant trip. I think you saw a good deal of the problems of the high plains area that day when you visited the Mirage Flats project.

On behalf of the boys and my colleagues in the Bureau of Reclamation, I wish you a very pleasant tour of duty as Mayor of Los Angeles. We hope that when we visit that city—and we have considerable activity in that vicinity—while you may not give us the keys to the city, you will at least see that we are taken care of.

Mr. CHENOWETH. Mr. Chairman, as Mr. Lineweaver has explained to you, the request of Mr. Aandahl to postpone his appearance until tomorrow has changed the order of our witnesses. We had expected Mr. Aandahl to appear this morning, to be followed by Mr. Powell, and go into the details of this project. In view of the change, we wish to present as our first witness to go into some of the details and give you an overall picture of this project, Mr. Harold H. Christy of Pueblo, Colo. Mr. Christy is in charge of water and power for the Colorado Fuel and Iron Corp., the largest corporation in the State of Colorado and the ninth largest producer of steel in this country.

Mr. Christy is recognized as one of the outstanding water men of our State. He is a director of the National Reclamation Association, and some of you had the pleasure of meeting him here when he attended a meeting of this association in Washington just recently.

Mr. Christy has been very active and helpful in this project, and I am sure he will be able to give you a good overall picture of what this project actually embraces.

Chairman MILLER. The Chair understands that Mr. Poulson will not be back, and I will ask Mr. Harrison to assume the Chair and the gavel and proceed with the witnesses, and you will be in charge, as I understand it, from now on, Mr. Harrison.

Mr. HARRISON. Thank you, Mr. Chairman. Proceed, Mr. Christy.

STATEMENT OF HAROLD H. CHRISTY, PUEBLO, COLO.

Mr. CHRISTY. Mr. Chairman and members of the committee, and Congressman Chenoweth. I believe a copy of my prepared statement has been supplied each member of the committee. For the sake of brevity and to spare your time, I do not propose to follow the text in this presentation, but to give you the highlights, a picture of the project area, so that as the different witnesses appear before you you will be able to have a little understanding of the area involved.

(The statement submitted by Mr. Christy is as follows:)

A STATEMENT SUPPORTING THE PROPOSED FRYING PAN-ARKANSAS WATER DEVELOPMENT PROJECT

By Harold H. Christy

For the purpose of identification, I am Harold H. Christy, 511 Polk Street, Pueblo, Colo. I was born at Colorado City, Colo., and have spent the major part of my life in Colorado. I was graduated from the Colorado School of Mines in 1922 and I am a registered professional engineer in the State of Colorado. Since 1929 I have been employed by the Colorado Fuel & Iron Corp. at Pueblo as its chief engineer of the water department and for the past 5 years as superintendent of the water and power departments.

I have been a member of the executive committee of the Arkansas Valley Ditch Association since 1930 and a director of the Water Development Association of Southeastern Colorado since this association was organized. I was a member of the "policy and review committee" which was set up to investigate and make recommendations to the Colorado Water Conservation Board on the Frying Pan-Arkansas project, and also a member of the subcommittee which drafted the operating principles referred to in Colorado's comments and the regional director in the United States Bureau of Reclamation's project report.

ARKANSAS RIVER BASIN

The Arkansas River is formed by the East and Tennessee Forks which unite at Malta near Leadville. Elevations in the headwaters area range from approximately 9,400 feet at Malta to 14,400 feet on the highest mountain peaks. The river flows in a southerly direction joining with several high-altitude tributaries from the west and the south to its junction with the South Fork at Salida. Throughout the area from Malta to Salida and thence east to Cañon City, the river flows through many narrow valleys and steep, rocky canyons.

Below Canon City (elevation 5,800) the river flows eastward through a valley which increases in width to its junction with the Fountain River at Pueblo (elevation 4,700), thence continues in an easterly direction across the high plains to the Colorado-Kansas line at an elevation of approximately 3,300 feet and some 340 miles from its source.

The Arkansas River Basin in Colorado comprises more than 25 percent of the total area of Colorado, however the distribution of precipitation is such that the basin contains only about 7 percent of the State's water resources.

Settlement and development of the basin actually got under way in the late 1850's following the discovery of gold. Permanent settlement continued as new ore deposits were discovered in the headwaters area above Canon City. Irrigated agriculture development occurred almost simultaneously in the areas closest to mining development in order to provide food and fiber.

DEVELOPMENT AND UTILIZATION OF WATER RESOURCES

During the early 1860's construction of small irrigating ditches occurred in the Canon City area and in the area downstream to a point approximately 30 miles east of Pueblo. Numerous small ditches on the tributaries and along the main stem of the river upstream from Canon City continue in operation to the present time. These individual enterprises were extended throughout the numerous narrow mountain valleys.

During the period 1859 to 1869 appropriations or decrees were perfected totaling some 1,475 cubic feet per second on the tributaries and an additional 1,776 cubic feet per second during the period 1870 to 1879. However, during the same period the records indicate appropriations were obtained on only 900 cubic feet per second on the main stem of the Arkansas River.

The first major development on the main stem occurred in 1874 in the Rocky Ford area. Interest in irrigation below Pueblo resulted in development and appropriations from the main stem of the river totaling approximately 3,000 cubic feet per second between 1880 and 1889 and an additional 3,000 cubic feet per second was appropriated during the following decade. During this period practically all small ditches east of Pueblo were consolidated or transferred to some major ditch system. These early priorities represent the dependable water rights in the consolidated systems as compared with the priorities established under these systems by reason of their construction.

Following the above development of irrigation systems supplied by direct flow rights, a few drouth seasons occurred, definitely establishing the need for supplemental water supply controlled for use during off-peak-flow periods. This resulted in the construction of numerous plains reservoirs fed by flash runoff from rains on the drainage above these reservoirs. Time again proved the inadequacy of this source of supply and subsequent decrees were obtained from the main stem of the river by reason of the enlargement of existing ditches or new ditches from the river to feed these reservoirs.

Three mountain reservoirs were constructed during this period, and together with the flood right ditches referred to above, controlled the high runoff of snow water in the spring as well as the flash runoff from heavy rains during July and August. The records indicate that this period of storage development ended about 1910.

All the above-mentioned ditch and reservoir construction was accomplished by means of private capital. Comprehensive investigations will indicate that full development of water resources possible under private financing has been accomplished. In fact, overdevelopment occurred as a ditch and reservoir on the Apishapa River was washed out by flood in 1923 and was never rebuilt. Stating this in another way, let's say that all single-purpose project development has been accomplished. This is true because the annual runoff from October to October of each year varies from a low of 195,000 acre-feet to a high of 933,000 acre-feet at Pueblo gage. The mean average annual runoff for the period 1910 through 1944 at Pueblo gage is on the order of 513,000 acre-feet.

During the period 1860 to 1910 the irrigated acreage increased from practically nothing to a peak of some 550,000 acres, and continued at approximately this amount until the late 1920's. The acreage under irrigation has been on the decrease since this time primarily on account of inadequate water supply to an average during the last decade of approximately 460,000 acres or a reduction in irrigated agriculture on the order of 80,000 acres. These figures are for the drainage basin. Reductions on the main stem of the river will account for the major portion of the decrease account of the development on the tributaries having a more dependable water supply.

Believe it is apparent that a main-stem reservoir of large capacity would be required to iron out the fluctuations from the minimum to the maximum as indicated above. Therefore, future beneficial development must of necessity be accomplished by the so-called multipurpose projects, that is, irrigation, flood control, sedimentation, and municipal supply. Projects of this type, due to the varied interests involved, are practically impossible of accomplishment under private financing.

The only increase in water supply since the first decade in 1900 has been the construction of some six small transmountain ditches each producing from 900 to 7,000 acre-feet annually. The total increase in water supply from 1910 to 1935 resulting from these transmountain ditches was on the order of 10,000 to 12,000 acre-feet annually.

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The first transmountain project of any size on the Arkansas River was constructed by the Twin Lakes Reservoir & Canal Co., known as Independence Pass transmountain diversion. This project was placed in operation in 1935 and since has contributed (depending upon runoff, of course) up to approximately 45,000 acre-feet annually. The Twin Lakes Reservoir & Canal Co. was forced to construct this project due to the drouth in the early 1930's.

All of the above-mentioned projects were accomplished by private financing and were feasible single-purpose projects on account of taking advantage of low mountain passes or existing railroad tunnels, except, of course, the Independence Pass project. The development of the above-mentioned projects has exhausted all possibilities available to the Arkansas River financed as a single-purpose project, forcing the consideration of multipurpose projects for the firming up of irrigated agriculture, municipal, and industrial supply.

The exception to the above-outlined development of water resources of the Arkansas Basin by private financing is the John Martin Reservoir project on the lower river, which was constructed by the Army engineers and placed in operation in the early 1940's as a flood-control and conservation project. Capacity in the John Martin Reservoir for carryover of the flash runoff, in addition to the flood requirements, is an excellent example of the benefits mentioned above in connection with large multipurpose projects.

PROJECT INVESTIGATIONS

During the middle 1920's the major ditch companies along the Arkansas River below Canon City realized the absolute necessity of a supplemental water supply for irrigation as well as municipal purposes to protect the economy in the basin. Investigations as to the possibility of diverting surplus water from the headwaters of the Colorado River and its tributaries and the Arkansas River were initiated. These efforts were extended toward the complete investigation of the needs in the Arkansas Valley as well as a comprehensive investigation of the requirements in western Colorado to the end that an orderly development might be accomplished without injury to any part of the State of Colorado. All of these efforts were of no avail due to intrastate misunderstandings and local jealousy.

Finally, following the severe drouth in the early 1930's, we were able to prevail on the United States Bureau of Reclamation to initiate investigations in the Arkansas Valley to determine the need for additional water. Upon completion of these investigations in the valley, the United States Bureau of Reclamation extended their work to investigations in western Colorado. The work by the Bureau covered water supply and future needs in western Colorado as well as the development of the amount of surplus water available for use in eastern Colorado. The information obtained by these investigations played an important part in Colorado's presentation as to its rightful needs in the deliberations leading up to the Upper Colorado River Basin Compact, signed October 11, 1948.

Due to the delay in completion of the comprehensive investigations in western Colorado, particularly the main stem of the Colorado River, and the dire necessity for immediate relief for domestic and municipal requirements, as well as a supplemental supply for existing development in the Arkansas Valley, it was decided to set up a small complete diversion project from the tributaries of the Roaring Fork. This project, being in an area where investigations of the water supply had been completed, was designed as an independent project well within Colorado's share of water from the Colorado River under the Upper Basin Compact. The design of the project is of such a nature that it can be molded into later complete development of any project outlined by the investigations on the Arkansas, Red, and White Rivers.

DOMESTIC SUPPLY

During the period of agricultural expansion and the subsequent stalemate or backward trend, the human and livestock requirements for water in the valley were constantly increasing. Population in towns and cities increased from a trading-post state to thriving communities. Municipal and domestic requirements played some part in the reduction of water available for agriculture, particularly in the vicinity of the two largest cities in the area, Pueblo and Colorado Springs, these communities having a population in 1950 in the metropolitan areas approximating 90,000 and 60,000, respectively.

Growth of Colorado Springs led to their acquiring ditch rights along the Fountain River between Colorado Springs and Pueblo and the transfer of these rights

to their headwaters reservoirs on the slope of Pikes Peak. This resulted in reduced irrigated agriculture along the Fountain River as evidenced by statistical record showing some 20,967 acres irrigated in 1929 as compared with 14,400 acres in 1949. These figures are for El Paso County and do not include any reduced acreage account of Colorado Springs transfer of water rights from Pueblo County.

Actually, no further transfer of rights along the Fountain can be beneficially accomplished as the natural flow at the Colorado Springs points of diversion is now fully depleted. The remaining agriculture in the area is being supplied by return flow from the city, some underflow and small flow from the lower tributaries.

Pueblo is supplied by two water districts which in the early days acquired 8.29 cubic feet per second of priorities dating 1870 to 1872, the acquisitions being by original construction or purchase of small irrigation rights. The districts also acquired decrees for 22.66 cubic feet per second in 1884 and 46 cubic feet per second in 1889. The combination of these rights proved adequate for the city's use until early 1920's at which time the trustees of the districts attempted to purchases additional irrigation priorities in the Canon City and Florence area. Two attempts at transfers were made but were refused by the courts. Following these activities the trustees negotiated a consent decree in 1930 with the major lower river ditch organization whereby they gave up 68.66 cubic feet per second of 1884 and 1889 priorities for 45 cubic feet per second of 1874 date. This trade was accomplished account of the ditch owners believing that the municipality had to have water and that the resulting action in reducing the total amount of diversion decree would result in a gain for agriculture. The 1874 date, being considered a continuous flow decree, appeared to be a good trade to the trustees. However, had the low river flows of the next decade been known at the time of the consent decree, it is not likely that the ditch owners would have consented to the 1874 date.

The records will indicate several occasions when the river has ceased flowing at the south side dam at Pueblo. This dam is a part of the diversion works at Pueblo South Side Water Works, and also in the location of the official Pueblo gage on the river. During the year 1934 the river flow was reduced for a prolonged period necessitating the sinking of wells in the riverbed to obtain sufficient water to meet restricted municipal requirements. This water, of course, did not legally belong to the city and its quality was questionable. However, if you could stand the chlorine taste, the water was wet and bacteria-free as it entered the distribution system.

Following this experience, the trustees for the North Side Water Board, Pueblo, acquired a small transmountain ditch from the Eagle River, a tributary of the Colorado, as a supplemental supply. In the absence of reservoir storage space, this transmountain water has been stored by agreement in the Sugar Loaf Reservoir near Leadville.

Continued growth during the last war resulted in the city's being threatened with legal action by the lower river ditch owners account of overdiversion of city's rights. In 1950 the trustees again attempted to acquire some old irrigation rights for municipal use, but failed in their attempts due to ditch owner protests.

The above clearly indicates that Pueblo, as well as Colorado Springs, has depleted all of the available Arkansas River supply without condemnation proceedings of irrigation rights which would of course result in further reduction of agriculture production in the valley. These domestic requirements must be supplied from a source other than the Arkansas River. The Colorado River represents the only remaining source of supply available to the Arkansas River Basin.

Since the available supplies from the Colorado River drainage occur during high spring snow runoff, large municipal diversions will be necessary during short periods which in turn will require large storage reservoirs in the Arkansas drainage basin. Thus domestic requirements for the future are definitely tied to large multipurpose project in order to provide orderly development.

The Frying Pan-Arkansas project design meets the municipal and domestic requirements east of Canon City due to the large holding reservoirs at high altitudes and the proximity of Pueblo to the terminal storage reservoir on the project. The terminal storage or Pueblo Reservoir, coupled with Valley pipeline and treating plant, will provide water for future human consumption in Pueblo as well as the remainder of the Arkansas Valley towns. In planning a project of this nature, the human and animal requirements in the urban and rural areas must be considered. It is anticipated that numerous delivery points

will be provided along the Valley pipeline for service to urban and rural population. Drinking water throughout the entire valley area is of questionable quality and is presently hauled from the towns to the farm sites for human as well as livestock consumption.

Most of the towns east of Pueblo have depended on well supply. However, during late years some have been forced to sink wells in the river flood plain or divert and chemically treat ditchwater, the ditchwater being of much better quality insofar as hardness is concerned than the well water last mentioned. Well supplies are not dependable in the Arkansas Valley as to quality, continuous flow and volume.

PUEBLO RESERVOIR

This project reservoir located some 6 miles west and upstream from Pueblo constitutes a typical multipurpose unit of the Frying Pan-Arkansas project. Municipal development of this site as a single-purpose project could well result in detriment to future overall plans for basin benefits as only limited reservoir sites are available. The necessity for costly railroad realinement through the site also prohibits the use of the site as a single-purpose reservoir. Combined use of a site of this type results in lower unit cost and the pooling of storage interests at the site will result in lower surface evaporation losses thus conserving the limited water supply available.

The Pueblo Reservoir is absolutely necessary for flood protection to the city of Pueblo and the immediate reaches of the river below Pueblo unless large sums of money are expended in channel work on the Fountain and for miles downstream on the main river below the junction of the Fountain and the Arkansas. The time interval between floods of great magnitude tends to enhance destruction of property and life when they do occur account of the conditions of the channel.

Following the flood of 1921, at which time some 78 lives were lost and property damage of approximately $19 million occurred, the city of Pueblo formed a conservancy district. Under the auspices of this district, a flood channel through the city and a barrier dam were constructed at a total cost of from $9 million to $10 million to the local taxpayers. Again we find evidence of local interests having provided for their own protection without Government participation.

This conservancy district work provides a channel through the City with carrying capacity approximately 120,000 cubic feet per second. However, due to the conditions of the channel below town, competent engineers feel that a flow of approximately 60,000 cubic feet per second would inundate the present water works facilities, leaving the community of approximately 90,000 people without water for domestic consumption and fire protection.

Construction of the Pueblo Reservoir will control the flow through the flood channel to an estimated maximum of 25,000 to 30,000 cubic feet per second, this peak flow being the result of flash runoff on drainages tributary to the river between the reservoir and the waterworks systems.

The reservoir will also provide space for storage of winter flow, permitting the application of this water on crops during the growing season; also space for storage by agreement among the water users of water normally held in the lower plains reservoirs on which excess evaporation occurs. Any reduction in the evaporation naturally increases water for application directly to the crops or for municipal use. This storage of the winter flows and the exchange of storage from the plains reservoirs must be accomplished under the Colorado statutes by agreement among the water users. All of the larger ditch companies in the lower valley have signified their willingness and intention to work out such an agreement. Service charges on this type operation of the Pueblo Reservoir will provide the contracting agency with some additional funds for repayment to the Federal Treasury for expenditures on the project and represent possible additional security for the investment.

In addition to the above uses of the Pueblo Reservoir, material benefits will be obtained in connection with sediment control, electric power and storage space for reserve domestic supply. Presently the reserve storage space in the Pueblo water systems amount to only 3 days maximum demand. It is apparent that a major revision in the city system must be made.

Some tentative plans to meet immediate emergency, but not of sufficient magnitude to correct the conditions, have been drawn by the trustees of the waterworks, but action has been deferred in order not to hinder or interfere in any way with overall basin development on the Arkansas River in Colorado. Pueblo is at present (without considering future normal growth) in dire need of additional water supply.

Federal regulations relative to uniform quality in connection with water supplied for use in interstate commerce will no doubt force the addition of a filtration plant, etc. Large expenditures of funds for these facilities, independent of some overall plan for the valley, would be false economy. A manufacturing and transportation center along the front range of the Rocky Mountains, together with the agricultural production, including the local trade centers, certainly should warrant full consideration and opportunity to participate in the reclamation and flood-control program of the Nation.

If, for no other reason, the value of this area in case of war should be given serious consideration due to its geographic location, giving consideration to the location of an integrated steel plant and allied industries, together with one of the largest ordinance depots in the United States.

INDUSTRIAL DEVELOPMENT

Pueblo, the trade center of the Arkansas Valley, is the location (since 1880) of the Minnequa plant of the Colorado Fuel & Iron Corp., an integrated steel plant. This is the major production unit of the ninth largest steel company in America. One of the major reasons for this plant being located at Pueblo was water supply. Due to the large quantities of water necessary to operate a steel plant, the corporation was forced to develop its own water supply. Its system consists of some 66 miles of ditches from the main Arkansas River and from the St. Charles River together with storage reservoirs in the Pueblo area. The corporation also owns Sugar Loaf Reservoir located some 6 miles west of Leadville on the headwaters of the Arkansas River. The canal from the Arkansas River heads about 2 miles west of Florence and is 46 miles long, emptying into reservoirs south of Pueblo. The headgate was located in this area due to the quality of the water available as the location is near the upper limits of limestone drainage to the river.

The water supply for this plant from the Arkansas River (as in the case of municipal supplies) was obtained in 1907 at the expense of agriculture. In other words, an old irrigation system was purchased including land and improvements and the water rights transferred to the corporation's point of diversion. The reservoirs, of course, were decreed by reason of construction and beneficial use. The steel plant's system supplies all of its industrial water, however, drinking water is provided from the city's system.

This system is mentioned in order to clear anyone's mind of the thought that the Fryingpan-Arkansas project will in any way subsidize a major industial enterprise. Review of the report will indicate the corporation has agreed to cooperate with the United States Bureau of Reclamation or the conservancy district contracting for the project to the extent the corporation's Sugar Loaf Reservoir site and land around this reservoir may be utilized so long as the vested rights of the corporation are not diminished or interfered with. You will note that storage space over and above the existing decree is to be paid for in the same manner as other reservoir sites used by the project.

The Colorado Fuel & Iron Corp.'s system is further mentioned as a typical indication of requirements for industrial water as expansion occurs in the area. For example, the use at the steel plant had increased to a daily requirement of approximately 32 million gallons per day in 1929. Modernization and expansion in the last 20 years has increased this demand to where the daily requirements approximate 60 million gallons, this demand being the requirements from the reservoirs and does not include the amount of repumping and reclaiming of water within the plant itself.

This plant produces many items required by the defense effort including shell steel, barbed wire, miscellaneous structural shapes, rails and fastenings, and with the completion of the tube mill, gun casings, as well as seamless tubes. Recent and planned expansion with new products will tend to draw allied industries to the area. These industries will require water for their use and their employees and, along with the corporation's use, will increase the demand for domestic water.

During recent years Pueblo and the Arkansas Valley have lost numerous industrial plants account of lack of water. For example: A paper mill requiring some 80,000 to 90,000 gallons of water per ton of production and a coal-washing plant requiring some 200 gallons per ton of coal handled. Fall campaigns of existing sugar plants have experienced water shortages during the last decade, particularly during drought years. Feldspar, fluorspar, lead, zinc, manganese, ceramic materials, etc., are available in the Arkansas Basin in Colorado, all awaiting economic development as population increases and the markets build

up. Development of these raw materials necessitates an increased water supply in order to provide for domestic consumption as well as processing. Without the Fryingpan-Arkansas project no water is available without further depletion of the agricultural supply which is already far below the normal requirements.

POWER MARKET

Raw materials known to be available in the project area present a ready market for low-cost power. Many of the coal and metal mines have been flooded out. Low-cost power, particularly secondary power, could be consumed in unwatering these mines, thus restoring the economy of these areas.

Further, the Arkansas Valley presently is not tied in with any large electrical grid system whereby interchange or large blocks of standby power are available. This condition has made it necessary for each local system to provide capacity in excess of that required in an area where interchanges permit the pooling of surplus capacity to provide for emergency standby. This condition has to some degree prohibited installation of metallurgical furnaces in the area as demand rates of necessity must be higher if a single system reserve is required as standby.

WESTERN SLOPE BENEFITS

The Fryingpan-Arkansas project, as described to you, consists of high altitude collecting system designed to divert surplus snow runoff to eastern Colorado without injury to western Colorado. In addition to the benefits in eastern Colorado, benefits will occur in western Colorado by the plan of operation developed during 3 years of investigation and study by the policy and review committee. This committee was composed of representatives of western and eastern Colorado and the director and consulting engineer of the Colorado Water Conservation Board. This committee at once recognized that dependable flow of the Colorado River was in some degree similar to that of the Arkansas, that is, high spring snow runoff and low flow conditions during the late growing season. Also, that recreational facilities of western Colorado areas must not be jeopardized, with the result that the Colorado Fish and Game Commission and the United States Fish and Wildlife Department Service were consulted and met with the committee in the planning of the project. The minimum stream flow schedules incorporated in project report "Operating Principles" were drawn up by the fish and wildlife agencies—this after numerous meetings and study of streamflow, etc. Also, that existing vested rights for the Independence Pass transmountain diversion acquired under Colorado statutes would under full development interfere with fish culture in the Roaring Fork. Further, that few good reservoir sites were available in western Colorado. Therefore, any program of development must fully evaluate the overall benefits in any plan for the utilization of the site.

With these basin conditions recognized, the policy and review committee established an engineering subcommittee consisting of engineers from western Colorado, engineers from regions 4 and 7 and the Planning Division of the Bureau of Reclamation and the chief engineer and consulting engineer of the Colorado Water Conservation Board. Review of all available stream-flow data indicated the feasibility of the Aspen site for a project reservoir in western Colorado. This site was chosen in order to permit full diversion of existing and future decrees on the Roaring Fork during the late summer months or at the end of the growing season. Provision was made for full irrigation of all available land in this area. A plan was devised permitting exchange with the Twin Lakes-Independence Pass transmountain diversion project in order to protect the recreational features on the Roaring Fork under full development of this project, it being remembered that this project owns existing rights under the Colorado statutes.

By using the exchange features of the Aspen Reservoir, a plan was developed for maintaining the minimum flows required for fish and wildlife as recommended by the Colorado Fish and Game Commission in conjunction with United States Fish and Wildlife Service.

These engineering studies of the runoff condition definitely indicated that during many years of record the existing ditches in the Aspen area would have been unable to divert the full amount of their decrees at the end of the growing season as mentioned above. This is not generally of public knowledge as the present development in this area has not required full diversion by these ditches. By providing the exchange mentioned above, the requirements in the Aspen area have been protected and enhanced to meet complete development of the resources of the area.

Under the Colorado law, no replacement or compensatory storage on the Colorado River drainage is required unless the project sponsors elect to build such storage in order to permit longer continued diversions by providing exchange during periods when their rights are junior to the requirement of senior appropriations in western Colorado. Reservoirs of this type are mandatory under some types of multipurpose development, for example, in connection with projects constructed under the Colorado conservation district law.

SUMMARY

In conclusion, the Arkansas Valley in Colorado is in desperate need of supplemental water supply for irrigation, municipal, and industrial purposes.

Full use has been made of existing water supply that is economically feasible for development by means of separate projects—this account of the difficulty of proper division of water under priority doctrine of water rights due to variations in timing of the runoff.

Possible re-regulation of winter diversions, concentration of storage to reduce evaporation losses, as well as the proper use of new water from the Colorado River Basin, together with proper use of remaining flood runoff, must of necessity come through a large multipurpose project, including hydroelectric power, wherein the benefits can be divided throughout the whole Arkansas Basin in Colorado according to need.

Comprehensive study by the best engineers available has determined that the amount of water to be exported from the Colorado River Basin by the Fryingpan-Arkansas project is well within Colorado's share of the Colorado River under the various compacts; further, that quantity to be exported is so small as compared to the total flow of the Colorado River across the Colorado-Utah line as to have little effect on the quantity of the water left in the Colorado River.

Further, the quantity of water imported to the Arkansas Valley is far below the supplemental needs in the Colorado-Arkansas Valley so that none of the water will cross the State line for use in States outside of the Colorado River Basin States as defined in the Colorado River compact. In addition, should a climatic change occur, there are thousands of acres of good land in the Arkansas Valley in Colorado not presently irrigated, so no one need fear that Colorado will permit any of the Fryingpan-Arkansas project water to pass out of the State unused.

I respectfully urge your committee to give this project your full and favorable consideration.

Mr. CHRISTY. For the record, as Judge Chenoweth has stated, my name is Harold H. Christy, 511 Polk Street, Pueblo, Colo. I was born and raised in the State of Colorado. I am a graduate of the Colorado School of Mines, have been employed in water and power since 1929 in the Arkansas Valley by the Colorado Fuel and Iron Corp. In that work I have had the responsibility of designing and constructing ditches and reservoirs.

In addition, I have been a member of the executive committee of the Arkansas Valley Ditch Association since 1930. I was a member of the so-called policy and review committee appointed by the State Water Conservation Board to study jointly with people from western Colorado and eastern Colorado the effect of this project on the western Colorado area as well as the benefits to be derived by the eastern Colorado area and the State as a whole.

Since the report of that committee was adopted by the Colorado Water Conservation Board, I have been appointed a member of what is now known as the Colorado conference committee, which is presently engaged in reviewing similar problems to those undertaken by the policy and review committee in connection with this project as it affects the entire east-west slope areas in the State of Colorado. However, it is my understanding as a member of that committee that the Fryingpan-Arkansas project, having been investigated and gone into thoroughly, is not a subject for that committee to now resolve.

Mr. ASPINALL. Do all the members of your review committee follow that same line of thinking?

Mr. CHRISTY. Mr. Aspinall, with your permission, the director of the Colorado Water Conservation Board is in the audience, and the matter is going to be discussed by other witnesses. I would prefer to have that answered there. I could not answer for all members of the committee.

Mr. ASPINALL. That is what I wondered.

Mr. CHRISTY. I appreciate that. I have answered your question. But in outlining the work of the committee, I can definitely state that the Fryingpan-Arkansas project is not on the agenda.

Before we proceed, and for the purpose of clarification, I would like to call to the committee's attention the map which is attached to page 1 of Senate Document No. 106.

You will note that the large map before you deviates from the map attached to Senate Document No. 106 in that generally features shown on the general map attached to the document in the upper lefthand corner and colored in brown, and broken lines in red, are deleted and not shown on this large map. The reason for the correction is that in the investigations of the problems in connection with the Arkansas Valley and the western slope of Colorado an overall inventory or study of the possibilities was first looked into by the Bureau of Reclamation, and due to a lack of complete data in some of the areas shown on this map, the project was finally broken down and limited to the items shown on this map. The operating principles and the agreement that was entered into between eastern and western Colorado specifically limits the consideration in this project to the facilities as shown.

Chairman MILLER. Would you be good enough to point it out with the pointer there?

Mr. CHRISTY. Yes, sir. Mr. Chairman, I was going to later detail this in a bird's-eye view of the project, but I should probably in this instance show it.

On that map you have some small ditches that are shown in red dotted lines that are collecting water going into this area right here by the Aspen Reservoir.

There also was a tunnel through from this drainage [indicating] over into another drainage in this area which would have brought water from the Crystal River drainage into the headwaters of the Gunnison River. All of those facilities in that area are not a part of the Fryingpan-Arkansas plan. I am calling your attention to it because this is a complete project within itself and not predicated on having that as an additional development sometime in the future without another overall project being completely studied and reported upon.

There also is a reservoir over here above Grand Junction shown that is deleted and not a part of the project.

Mr. ASPINALL. Mr. Chairman?

Mr. HARRISON. Mr. Aspinall.

Mr. ASPINALL. Might I ask Mr. Christy to make a full statement of the so-called operating agreement that he speaks of between western and eastern Colorado, because this committee is going to be advised within 2 or 3 days that there was a meeting of all counties of western Colorado yesterday or the day before, and that they opposed this project. I wish you would advise this committee now so that they will not have the wrong impression as to what kind of an agreement was arrived at on this project.

Mr. CHRISTY. Mr. Aspinall, do you wish that right now or in line with my presentation?

Mr. ASPINALL. If you are going to make it in your presentation to the committee ——

Mr. CHRISTY. I was going to refer to that, sir.

Mr. ASPINALL. That will be all right.

Mr. HARRISON. Mr. Saylor.

Mr. SAYLOR. Mr. Christy, am I correct now in understanding your statement to this committee that the differences which you have pointed out in the large map referred to as the Fryingpan-Arkansas project, and that contained in the general map in Senate Document No. 106 of the 82d Congress means that those differences which you have enumerated have been eliminated from this project?

Mr. CHRISTY. The structures that I have mentioned and called to your attention that have been eliminated from the map and shown in the document are not a part of the project as presently presented to this committee.

Mr. ASPINALL. Will my colleague yield for an observation?

Mr. SAYLOR. I will be happy to.

Mr. ASPINALL. What Mr. Christy is talking about is the original Gunnison-Arkansas project. That was an overall project. Now this initial phase is simply known as the Fryingpan-Arkansas project, and it is only a very small part of what was included in the overall Gunnison-Arkansas. Will that help my colleague any?

Mr. SAYLOR. It will if I can understand from Mr. Christy that these items which he has referred to, shown on this small map and not shown on the large map, were they or were they not originally included as a part of the project costs?

Mr. CHRISTY. No, sir; they were not included, sir, as a part of the project cost of the Fryingpan-Arkansas project. The original investigations, sir, were known as the Gunnison-Arkansas. At the time the project was presented to the Colorado Water Conservation Board at the request of the policy and review committee and the people in western Colorado, the name was changed.

I think if you will look at your report it is the Roaring Fork diversion of the Gunnison-Arkansas project. And the State of Colorado has formally requested that it be renamed to the Fryingpan-Arkansas project in order to tie it down to the locality and get away from the big overall investigations that Representative Aspinall has mentioned. I merely mention that because some people look at it and it is confusing.

Mr. SAYLOR. That is one of the reasons I asked for this breakdown, because as I looked at that map I saw items referred to here that I could not find anywhere in the report.

Mr. HOSMER. Will the gentleman yield?

Mr. SAYLOR. I will be happy to.

Mr. HOSMER. Do I understand this Fryingpan-Arkansas project is one part of a broader project that might or might not be advised later?

Mr. CHRISTY. All the project facilities that are shown on that map can stand on their own feet. They are so designed if in the future there is an overall upper Arkansas River Basin development in the area, it can be molded into the plan. But the project as presented to you in Senate Document No. 106 and on that map is a unit complete in itself.

Mr. HOSMER. But it is a unit that could be a part of a larger and more expanded project of some sort?

Mr. CHRISTY. Yes, sir; it could be at some time in the future.

I would like to describe first the need for this project and give you a bird's-eye view of this valley. I know some of you are familiar and it will be repetitious, but possibly some of the others of the committee are not fully familiar.

The Continental Divide in Colorado is shown right here. In this Arkansas drainage area in eastern Colorado is 25 percent of the land that is in the State, 7 percent of the water resources, precipitation, and water runoff. The great amount of runoff occurs on the west side of the Continental Divide.

The Arkansas River heads here [indicating], near Leadville. The elevations at Malta, which is the junction going into the town of Leadville, are about 9,400 feet. There are ranges in this Continental Divide, many peaks over 14,000 feet. The river follows the narrow mountain valleys for some 20 miles below Leadville, goes into a narrow rocky gorge, and finally opens up into what is known as the upper Arkansas Valley—Buena Vista, Salida—at an elevation of about 7,000 feet; then down through what is known as the Royal Gorge to the city of Pueblo, about 4,700 feet in elevation, and finally out across the State line, where it is just a little over 3,000.

Beginning at Canyon City, the valley opens up, and there are thousands of acres of arable land in that area, but no water supply.

There will be other witnesses to go into the details of this irrigated area, the acreage and so forth.

But briefly, in the areas below Pueblo there are numerous irrigation systems which resulted in the owners of those systems filing for priorities in the State of Colorado under the Colorado law, which is greatly in excess of the water supply available.

The first development in this area was by private enterprise and includes small ditches along the streams. Along about the 1880's they began to consolidate some of the smaller ditches and build larger ditches, confiining all of the ditches in one area, consolidating them out on to land development.

Very shortly it was developed the water supply was not adequate and some off-stream reservoirs were built on side drainages in the plains area.

Subsequently, in about another decade, those drainages did not supply sufficient water to provide ample water supply, which ranges from, I think, a low of about 195,000 acre-feet at Pueblo gage, to a high of approximately a million acre-feet.

Finally new ditches were built into these Great Plains reservoirs to deliver water from flash floods from the top of the snow runoff into these reservoirs to conserve that water supply.

Ultimately, around 1900 there were three mountain reservoirs constructed to add to the conservation for beneficial use of water in the area.

About 1910 we started a decrease in irrigated acreage in this area to the point where some 80,000 acres formerly irrigated in the area had been taken back to pastureland due to the lack of adequate water supply.

In the early 1930's I personally was on a committee starting the activities toward the development of a supplemental water supply from the surplus waters in western Colorado.

About 1936 we prevailed on the Bureau of Reclamation to initiate investigations in this area (indicating) to show the need. Subsequently funds were made available for investigation in western Colorado to determine the needs and the potential future needs. Lack of complete information throughout those years in western Colorado prevented the recommendation of a complete report down through that period of years.

In 1948 the Colorado Water Conservation Board appointed the so-called policy and review committee to study a preliminary draft of a report on what is now known as the Fryingpan-Arkansas project. That committee and the work of that committee will be covered by another witness. But, briefly, I wish to state that the committee was composed of 2 representatives from the project area of western Colorado, 2 from the Arkansas Valley, the consulting engineer from the Colorado Water Conservation Board, the director of the Colorado Water Conservation Board, the director of the Colorado State Fish and Game Commission.

After some 30 months of meetings and rather extensive studies and investigations of the records available both by engineering committees and legal committees, this policy and review committee presented a report to the Colorado Water Conservation Board, which Judge Chenoweth has mentioned, was unanimously adopted and approved by that State agency.

Mr. SAYLOR. At that point, might I ask this question, Mr. Christy? Am I correct in my understanding that the waters of the Arkansas River and the development that you have described, pointing to the various spots on the map, are all east of the Continental Divide?

Mr. CHRISTY. All that I have mentioned from the headwaters east of Leadville are up to this moment the Arkansas River, the native waters in that drainage, sir.

Mr. SAYLOR. And that those waters are subject to the Arkansas River compact between Colorado and Kansas?

Mr. CHRISTY. Yes, sir.

Mr. SAYLOR. Am I correct in my understanding that in the Arkansas River compact between Colorado and Kansas that no waters were considered west of the Continental Divide?

Mr. CHRISTY. That is right, sir.

There is one item I did not mention which will be gone into further by other witnesses. Down through the years, beginning about 1900, up here on the Tennessee Pass there was a small surface ditch built to bring water from the western Colorado drainage into the Arkansas River. There are some 8 or 9 of those small ditches delivering from a few hundred acre-feet up to as much as 5,000 acre-feet built over a period of 30 years in that area.

The only major development of any consequence was one built in 1938, I believe, known as the Independence Pass transmountain diversion, which taps the headwaters of the Roaring Fork above Aspen and diverts the water into Lake Creek and then into Twin Lakes, Twin Lakes being owned by The Twin Lakes Reservoir & Canal Co. I will mention the effect of their decrees in just a minute, go into it a little further.

I wish to call your attention to the fact that all of this development has been private initiative, private enterprise. The only project in the Arkansas drainage other than that is John Martin Reservoir which is mentioned in the Kansas-Colorado compact, and was built

by the Army engineers. It is a flood-control and conservation pool to help settle the 30-odd years of litigation between these 2 States. I believe this committee is fully familiar with that problem and that project as the compact was approved by Congress.

I would like now to describe briefly the features of the project which are specifically included in this Senate Document 106 as the features of the Fryingpan-Arkansas project.

At the headwaters of the Fryingpan River, which is a tributary of the Roaring Fork——

Mr. ASPINALL. You had better get down lower.

Mr. CHRISTY. [Indicating.] Does that answer it?

Mr. ASPINALL. That is right.

Mr. CHRISTY. At Glenwood Springs. The Roaring Fork tributary joins the Colorado River at Glenwood Springs. It divides into the Fryingpan River here, and the main headwaters of the Roaring Fork continuing up to the main Continental Divide.

The plan of the project calls for what is known as the North Side collection system, some 30 miles of collecting ditches using the drainages in that area to carry the water around to what is the west portal of the Continental Divide tunnel, the main tunnel into the Continental Divide. The South collection system, some 20 miles in length, taps Chapman Gulch, and the drainage crossing it, and also into Chapman Gulch there is a short tunnel delivering water from the headwaters of Hunter Creek, which is a tributary of the Roaring Fork.

Mr. DAWSON. Is that on the left side of the Divide?

Mr. CHRISTY. (Indicating with pointer.) The left side of the range.

Mr. DAWSON. Didn't I understand you to say there was not any of the water from the west side taken over to the east side?

Mr. CHRISTY. No, sir. I believe, sir, that I answered the question that the water I had mentioned, up until the time the question was asked, was the native water of the Arkansas River, sir. Now, I am describing the project, and the collection of water on the west side is the system I am presently explaining.

Chairman MILLER. Will you tell me how much water is contemplated from the west side to come over to the east side?

Mr. CHRISTY. Approximately 69,200 acre-feet annually.

Mr. DAWSON. What percentage is that of the total water you would use in the project?

Mr. CHRISTY. About 30 percent of the potential benefits.

Mr. ASPINALL. Mr. Christy, you should add to that figure the amount now coming over by the Twin Lakes diversion that you call Independence Pass diversion. Outline for the committee where the Independence Pass gathering districts are. State the capacity.

Mr. CHRISTY. All right, sir. I mentioned the two collection systems and the tunnel through into Hunter Creek. A moment ago I mentioned that the first major transmountain diversion into the Arkansas Valley was built by the Twin Lakes Reservoir & Canal Co. in 1938.

A tunnel at the head of Lake Creek into the head of the Roaring Fork with collection systems both to the north, in a northerly direction and in a southwesterly direction. That project has potential ability to divert some place in the neighborhood of 50,000 acre-feet annually. Presently I believe the diversions have been a maximum of around 42,000 or 43,000 acre-feet annually.

The limitation on the present transmountain diversion facilities of the Twin Lakes Reservoir & Canal Co. is the capacity of their reservoirs at Twin Lakes, which they own, and the reservoir system under the Colorado Canal which comes out in this Ordway district. The decrees by the Twin Lake Reservoir & Canal Co. are final decrees under the statutes of the State of Colorado. The Twin Lakes Reservoir & Canal Co. could enlarge their storage reservoirs and increase the amount of their diversions from western Colorado. However, they have deferred their activities awaiting the outcome of the approval of this report in order to join with their neighbors in the Arkansas Valley, as well as their neighbors in western Colorado, to reap the benefits as a team collectively rather than going it individually.

Mr. ASPINALL. Which, if done, would make a maximum transmountain diversion of a little bit over 110,000 acre-feet?

Mr. CHRISTY. From that area.

Mr. PILLION. The increase would then be from 42,000 to 110,000, Mr. Aspinall?

Mr. ASPINALL. That is right.

Mr. PILLION. Thank you.

Mr. CHRISTY. Mr. Pillion, I think what Representative Aspinall meant is the total out of that area of Twin Lakes Reservoir and Canal Co.'s project which they presently own, and the diversions by this project is 110,000.

Mr. PILLION. I am sorry.

Mr. HOSMER. There is about 30,800 by the private facilities there, is that right? 30,800 acre-feet?

Mr. CHRISTY. I think their present maximum has been around 43,000 acre-feet annually. That varies from year to year depending on the runoff in the area because they have to divert their water in order of their priorities. I have somebody here with some detail on that. It is 35,000 average, I am advised.

Mr. PILLION. If the Twin Lakes were to increase the reservoirs, how much do they increase their transmittal?

Mr. CHRISTY. To about 53,000 acre-feet annually.

Mr. RHODES. Their present decrees are sufficient?

Mr. CHRISTY. Yes, sir, they have a final decree; facilities are all that are necessary.

Mr. RHODES. I am a little bit interested to know how they could get a decree for 53,000 acre-feet when they only diverted 42,000.

Mr. CHRISTY. I would like to refer that to legal counsel, with your permission.

Mr. RHODES. We will defer the question.

Mr. CHRISTY. It depends, of course, upon the conditions.

Mr. RHODES. Thank you.

Mr. CHRISTY. I was describing this project, and Mr. Aspinall, if you will bear with me, after I get it described, I then want to come back and show the effects of the operating agreement as you requested.

Mr. ASPINALL. That is right. But I wish the committee to have an understanding when they hear certain figures that you must add to those to show the effects upon the western part of the State. That is all I was concerned about. There is diversion of 110,000 acre-feet.

Mr. CHRISTY. But you still have the burden of 53,000 acre-feet now.

Mr. ASPINALL. Yes, that is exactly right.

Mr. CHRISTY. I described there was a short tunnel from the head of Chapman's Gulch into Hunter Creek tapping the drainage of the Roaring Fork. You will also notice that there is a ditch running northeasterly direction here that seems to come way downstream from the portal of that tunnel. That is known as South Side Collection System on Hunter Creek. That facility was added to the project in order to benefit the low-flow conditions in the Roaring Fork River during the months of August and September and will be outlined in detail by another witness, both the legal and engineering testimony, before this committee.

After the water is carried through the Continental Divide, it drops into what is known as the Lake Fork of the Arkansas and runs into what is now Sugarloaf Reservoir. That reservoir will be enlarged to capacity of 117,000 acre-feet. Details of the project and so forth will be covered by the area engineer.

From the Sugarloaf Reservoir there is a power canal into Twin Lakes which will be enlarged. The water then drops into Clear Creek Reservoir, and Twin Lakes will be enlarged to a capacity of 260,000 acre-feet, the present capacity being around 55,000. The water flows through the power canals and drops down just west of Salida. Then the main stem of the Arkansas River is used as a carrying conduit until you come to what is known as the Terminal Reservoir about 6 miles west of Pueblo. From this point the water will be passed through a power plant and the channel of the river again used and the water distributed as supplemental supply to the existing irrigated acreage in the Arkansas Valley. There are no new lands projected under this project.

One additional feature of the project is the pumping and filtration plant immediately adjacent to the Pueblo Reservoir and a pipeline some 175 miles long supplying the various municipalities through the entire reaches of the lower Arkansas River with municipal water.

Mr. SAYLOR. Mr. Christy, am I correct in understanding your statement that the fundamental purpose of irrigation as far as this project is concerned is to concern only supplemental water?

Mr. CHRISTY. Yes, sir, no new acreage.

Mr. SAYLOR. Recalling your former statement that all of this development, with the exception of the dam built by the Army Engineers for flood control, has been under private development, does the 160-acre low apply in that valley?

Mr. CHRISTY. It does, I suppose. I would like to refer that to our legal counsel. I mean, if that is the law on the books, it would.

Mr. SAYLOR. I mean at the present time you have no lands in the project affected by that law?

Mr. CHRISTY. We do not have any projects affected by that law, sir.

Mr. SAYLOR. Very well.

Mr. CHRISTY. This municipal pipeline will supply a good quality of water to all of this area in which there is a desperate need for water for domestic use. There are few wells and water is limited and some of the areas are even hauling water in tanks. No expansion or development in that area has occurred of any magnitude because of the lack of municipal water supply.

That brings us to a statement I believe is pertinent here, that all of the private development has been made that can be made as single-

purpose developments. We now come to projects to benefit this area of such magnitude that multipurpose projects are the only way it can be accomplished, and this project as set up provides irrigation, municipal water, irrigation supplemental supply, irrigation water, sedimentation, flood control and recreational benefits, and power.

About the site of this reservoir, a little distance downstream from the dam, the Pueblo Conservancy District, following the 1921 flood, in which a good many million dollars of property was damaged and 78 lives were lost, constructed a flood-control barrier at a cost in the neighborhood of $9 million. This Pueblo Reservoir will control all of the flash-flood runoff above the reservoir, the only drainage of any magnitude being Dry Creek right in this area [indicating] not shown on the map, above the town of Pueblo.

That conservancy district was designed with a capacity of 120,000 cubic feet per second. However, many reputable engineers have estimated that the water supply for that town of 90,000 people would be inundated or submerged with a flow in the neighborhood of 60,000 cubic feet per second. The magnitude of the flow in that area, following the construction of that reservoir, will probably be in the neighborhood of 30,000 second-feet. So the flood-control benefits are immediately below and also in the entire area between the Pueblo Reservoir and the John Martin Dam.

Chairman MILLER. Can you tell me, Mr. Christy, how many acres of irrigated land in that area will get supplemental water?

Mr. CHRISTY. Below Pueblo, in the neighborhood of 322,000 acres.

Chairman MILLER. And what about above Pueblo?

Mr. CHRISTY. Above Pueblo about 12,000 acres could be benefited. And the municipalities in this area adjacent to this stream, of course, can be benefited by municipal water supply.

Mr. ASPINALL. Mr. Chairman, if you will permit me to ask a question there. How much water would that make per acre, how much supplemental water would that make per acre in the area being served of additional water?

Mr. CHRISTY. Mr. Aspinall, I feel that that amount is not material at this time.

Mr. ASPINALL. All right.

Mr. CHRISTY. In that it would be based on the way the contacts for the repayment and the allocation of the water are. If you want an answer for an overall figure, we could divide 344,000 acres into 69,200 and arrive at an average figure per acre.

Mr. ASPINALL. Which would not be very beneficial unless you did have these operating agreements to take care of——

Mr. CHRISTY. I was coming to that. I hope I can satisfy your question, sir. I will explain the tunnel and the plain area of the Arkansas River.

There is one feature that I have not mentioned, and that is the Aspen Reservoir located above the town of Aspen with a capacity of 28,000 acre-feet. As the project was originally designed, the replacement or storage reservoir within the project in western Colorado was on the Fryingpan River. Judge Chenoweth and I have referred to the policy and review committee. The deliberations of that committee will be gone into fully by other witnesses. At the request of the water experts in western Colorado, a complete study of the area was made by the engineering advisory committee and the legal

committees, and the location of the western Colorado storage facilities was placed on the Roaring Fork above Aspen and was so included in the project facility.

There are two basic reasons for picking this site. One is that in our mountain areas, both eastern and western Colorado, there are not many reservoir sites, and it just is not right to wreck a reservoir site with a part project or a minimum size reservoir. This site met the requirements of the replacement and is designed to utilize to the maximum in that area, whereas the project requirements for this project, as an independent project—the other sites have more capacity and they would not have utilized all of it.

The deliberations of the policy and review committee definitely indicated the need for some storage for late summer irrigation in western Colorado on the Roaring Fork in the Aspen area and as protection from destruction to the fish due to the depletions of flow resulting from the decreed rights in this Twin Lakes Reservoir & Canal Co. transmountain project.

Rather exhaustive studies were made of the requirements, and in the deliberations of the policy and review committee, the Federal Fish and Wildlife, the State Fish and Game Commission sat in with the engineering advisory committee and set up minimum stream flows at the Aspen Reservoir and at various places over here [indicating] on the collection system in order to protect the fish and wildlife. So in designing this project, the recreational and fish and wildlife benefits were fully recognized by the official agencies, both State and Federal.

Does that answer your question, Mr. Aspinall?

Mr. ASPINALL. That is all right. I have just one other observation I wish to make at this time.

The Aspen Reservoir site has no relationship whatever with the storage program in the upper Colorado River Basin. We have some people here from that district, and it does not have any relationship at all with that directly.

Mr. CHRISTY. This project, as designed, Congressman, only has bearing on the Colorado River Upper Basin compact in that it is well within, according to the reports and official comments of the State, Colorado's share of the water allocated, but is not a part of the upper basin storage project as such.

Mr. ASPINALL. The waters to be stored in the Aspen Reservoir are to be for use downstream in Colorado and not to take care of the upper basin.

Mr. CHRISTY. The benefits of that reservoir are both for replacement for the project, for late summer use in western Colorado to meet the industrial or potential requirements in western Colorado, and even under the operating principles as set up in the Policy and Review Committee will have to take their share of Colorado's requirements at Lee Ferry under the Colorado River compact.

Mr. PILLION. One more question. Is there any water to be taken from the Aspen Reservoir for transmountain diversion?

Mr. CHRISTY. This reservoir—again I am trying to pass over progressively and let the other witnesses cover.

The elevation of this reservoir is about 8,000 feet and the elevation of the collection system is 10,000. There will be no water that is captured in this reservoir diverted through and into the other basin.

All of its obligation is on that side of the stream, and incidentally, under the operating principles agreed to by the State of Colorado, that structure has to be completed first before any of these waters are diverted from western Colorado.

Someone probably is wondering about this collection system I referred to a minute ago, and I believe I should describe it now although it will be gone into later.

The south tributaries of Hunter Creek were added to the project in order that the Twin Lakes Reservoir & Canal Co. might defer under low-stream flow conditions when they still had a legal right to divert water. But under low conditions, which might interfere with the fish schedules as set up, they could defer taking water here and get replacement from the project via this up to a specific amount each year. In that way, water from the south side collection, they will have an obligation up to 3,000 acre-feet annually to make that replacement.

Incidentally, that will take a contract between the district and the Government. The members of the Twin Lakes Reservoir & Canal Co. have agreed to meet with and endeavor to work out. They have agreed to the proposal as contemplated.

Mr. DAWSON. Are you through with your statement? May I ask some questions now?

Mr. CHRISTY. I would like to sum up. I will be glad to answer questions.

Mr. DAWSON. Go ahead. I did not know whether you were through or not. Go ahead and finish your statement.

Mr. CHRISTY. I have deviated from the text in order to try to paint a picture of the project.

In conclusion, the Arkansas Valley in Colorado is in desperate need of supplemental water supply for irrigation, municipal and industrial purposes.

Full use has been made of existing water supply that is economically feasible for development by means of separate projects—this account of the difficulty of proper division of water under priority doctrine of water rights due to variations in timing of the runoff.

Possible reregulation of winter diversions, concentration of storage to reduce evaporation losses, as well as the proper use of new water from the Colorado River Basin, together with proper use of remaining flood runoff, must of necessity come through a large multipurpose project, including hydroelectric power, wherein the benefits can be divided throughout the whole Arkansas Basin in Colorado according to need.

Comprehensive study by the best engineers available has determined that the amount of water to be exported from the Colorado River Basin by the Fryingpan-Arkansas project is well within Colorado's share of the Colorado River under the various compacts; further, that quantity to be exported is so small as compared to the total flow of the Colorado River across the Colorado-Utah line as to have little effect on the quality of the water left in the Colorado River.

Further, the quantity of water imported to the Arkansas Valley is far below the supplemental needs in the Colorado-Arkansas Valley so that none of the water will cross the State line for use in States outside of the Colorado River Basin States as defined in the Colorado River

compact. In addition, should a climatic change occur, there are thousands of acres of good land in the Arkansas Valley in Colorado not presently irrigated so no one need fear that Colorado will permit any of the Fryingpan-Arkansas project water to pass out of the State unused.

I respectfully urge your committee to give this project your full and favorable consideration.

I would like now to make one other short statement.

In order to be brief and give a bird's-eye picture, I did not point out the potential of possible benefits of winter regulation of the existing native waters in the Arkansas drainage, which added to the imported water brings your benefits up to the order of 200,000 acre-feet annually.

Someone asked me the question, what percentage of the benefits were western Colorado and what percentage eastern?

Mr. DAWSON. Mr. Chairman, may I ask questions?

Mr. HARRISON. Mr. Dawson.

Mr. DAWSON. I am concerned as to the effect this project would have on the upper Colorado project. It is my understanding that the Upper Colorado Commission feels that the proof of this project should be deferred until the whole upper Colorado project could be considered. Am I right in that assumption?

Mr. CHRISTY. I could not answer for the commission. However, Mr. Will, the secretary of the Upper Colorado Commission, is supposed to be here.

Mr. DAWSON. I have a letter from Mr. Will in which he states——

Mr. CHRISTY. He will be a witness or present a statement.

Mr. DAWSON. He feels that the approval of this measure should wait until the upper Colorado project can also be heard at the same time. I am not familiar enough with the reasons for his objections, but in view of——

Mr. CHRISTY. We have a statement to be presented to this committee from Mr. Will.

Mr. DAWSON. You say you have a statement?

Mr. CHRISTY. Yes, sir.

Mr. DAWSON. Perhaps what I have to say might be deferred until we can have that.

Mr. CHRISTY. He is due in town at 10 o'clock, or was at 10 o'clock this morning. He will be before this committee later in the day or tomorrow.

Mr. DAWSON. Then that is all I have. I would like to hear him and see what effect this has on it.

Mr. HARRISON. Do other members have any questions of this witness?

Mr. SAYLOR. I have some questions. I have been doing a little mathematics up here. I would like to have you check me whether or not I am correct.

I understand that the total amount of new water which will be placed in this district as a result if this project is approved is 62,000 acre-feet annually.

Mr. CHRISTY. 69,200 feet.

Mr. SAYLOR. 69,200?

Mr. CHRISTY. Yes. That is average long-term.

Mr. SAYLOR. All right. Now as I have seen the figures which have been submitted, there is applied out of the original $147,440, $59,930,000 irrigation. I want you to tell me how you can pay back $59,930,000 by the sale of 69,200 acre-feet of water, and so show that this project is feasible; because, according to the present figures, both the original and revised show that you expect to charge roughly $3.60 per acre-foot for this supplemental water. That is approximately $250,000 a year. For a 40-year period it is $5 million. I want to know what happens to the other $54,930,000. Where do we get pay for that?

Mr. CHRISTY. Mr. Saylor, with your permission, I would like to refer that to the witnesses who are going to be presented to your committee. I feel sure they are going to answer your question.

Mr. SAYLOR. Is there anything wrong with the mathematics we teach back in Pennsylvania? I always understood that 2 and 2 were 4 anywhere in this country, and I am at a loss. I am only trying to develop this thing and find out wherein this is supposed to be feasible. And looking at these reports and the amount of water that you have, over 40 years here just on irrigation, alone, without power, without municipal water, without flood control, without any of the other uses in a multipurpose project, of the $59,930,000 that you charge, you are $54,930,000 short.

Mr. CHRISTY. The answer to that is you have not only the irrigation group paying so much per acre-foot, there is a mill levy. The project, it will be disclosed, will have to be developed and built under what is known as the Colorado Conservancy District law. There will be a mill levy on all private and real property in the area to help support, and the revenues from power. All of those items are used in the repayment analysis which will be presented to you.

Mr. SAYLOR. Are you now proposing that you are going to repay the irrigation costs in this project from power?

Mr. CHRISTY. The irrigation costs, without interest, with power and revenue from possible municipal water and taxation on the district, depending on which method of repayment you use and what is the policy.

Mr. SAYLOR. I see here at page 18 of Senate Document 106 you say that you expect to receive net revenues from the irrigators in the district in 40 years of $10,881,600. That is just double what you would receive if you charge $3.60 an acre-foot.

Now, if this project goes through, I want the farmers out in this district to know what they are going to have to pay for an acre-foot of water.

Mr. CHRISTY. Mr. Saylor, the revision of the estimate which has been mentioned to you briefly, the farmers in the Arkansas Valley, some three hundred-odd men on the land, have been working developing what the value of an acre-foot of supplemental water is in the Arkansas Valley. You are absolutely correct they should know what it is going to cost them. That will all be presented to you in detail, sir, as our various witnesses come before this committee.

Mr. HOSMER. Will the gentleman yield for a question?

Mr. SAYLOR. I yield.

Mr. HOSMER. Was your figure that they would have to charge around $7 or $8 an acre-foot to sustain this $10,881,600 revenue?

Mr. SAYLOR. That is correct. It is a simple matter of mathematics. 69,200 acre-feet, and they expect to get $10,881,600 in 40 years.

Mr. ASPINALL. If the gentleman will yield, there is not any 69,200 acre-feet, because you have losses of 15,500. So really your net irrigation supply, as I understand the report on page 16 is 53,700.

Mr. CHRISTY. Congressman, may I comment?

Mr. ASPINALL. Yes.

Mr. CHRISTY. You recall we mentioned there are some native waters in the Arkansas River that are going to be re-regulated. There will be some revenue from that. There is also the possibility, which will come out of use of this project, of agreements to take the water that is presently held in the shallow Great Plains pools out here and move it into the deep Pueblo Reservoir and conserve additional supply of water, water that is presently being destroyed with no good use, and there will be benefits from that.

Mr. ASPINALL. What I am calling to your attention, though, is that as far as diversion is concerned, it is about 53,000; then you pick up this other water because of the construction of the project, and you can use it. Now what your total amount of water is that you can properly charge against the construction of this project I do not know yet, but I expect we will have that figure.

Mr. CHRISTY. Right. There will be a detail on this from other witnesses. But you have revenue, and you have more benefits in this project—and please just do not hold this project down as a transmountain diversion and that is all the benefits you going to receive, because you are going to get new water from this area. You are re-regulating the winter flows now presently inefficiently used and putting them on the land during the growing season. You have a right to reclaim, by agreement of the water users, water that is now presently evaporated because of the shallow pools. And when you are looking at the project repayment as a whole, you cannot just talk about the net water that is developed and brought through the transmountain diversion; you have to look at the project and its repayment ability from all of the benefits direct that are in the area, let alone the indirect benefits.

Mr. SAYLOR. We all realize that, but what we are trying to find out is where you are going to get enough water at a price, which they say in their report is substantially less than $3.60 an acre-foot, to produce in 40 years $10,881,600.

Mr. CHRISTY. You will find that the repayment in the final analysis, since the readjustment of construction costs and figures, the percentage paid by the farmer will be higher than the figures that are shown in Senate Document 106 due to the revision of the estimate, and that information will be given to you in detail by the engineers who planned the project. With your permission, I would like to have those men who are prepared to go into those analyses, give you the detail rather than try to delve into it.

Mr. PILLION. May I just ask one question? What is your annual ton capacity of the Colorado Fuel plant there?

Mr. CHRISTY. At Pueblo itself?

Mr. PILLION. Yes.

Mr. CHRISTY. In the neighborhood of 1,400,000 tons.

I might say this, gentlemen, which I did not mention in my presentation here: The Colorado Fuel and Iron Corp. has developed

and have their own rights and reservoir supplies. We are not participating in any of the benefits from this project other than the indirect benefit of the good of the community, the advancement in that area.

The reservoir at Sugarloaf on the headwaters is owned by the Colorado Fuel and Iron Corp., and we have agreed to work with the Bureau and project managers so long as our existing priorities under the Colorado statutes are protected. We are not using water from this project.

There is one reference made, that if this reservoir is enlarged, we may wish to buy storage space to conserve the water we own, for which we expect to pay the going rate.

Mr. PILLION. Do you have any plans for expansion of your blast furnaces or open hearth?

Mr. CHRISTY. That plant's water requirements, sir, have gone from 32 million gallons in 24 hours to as high as 75 million gallons in the last 20 years. We are continually expanding. We are presently building a large seamless tube mill. And I would anticipate there will be continued expansion in that area. We have adequate raw materials. From here on out we will have to start destroying water.

You brought up the question. It is taking the time of the committee, but it is important.

In April, the streamflow at the reservoir gage went down as low as 66 cubic feet per second. At that time the return of that steel plant was around 115 cubic feet per second, and that water was supplying senior priorities below Pueblo. We have not destroyed water to any great extent up to now. From here on we will have to start destroying.

Our reservoir system is outlined in this statement, but I did not want to burden you with it in this presentation.

Mr. HOSMER. May I ask a question? You are familiar with Gunnison-Arkansas project as originally proposed, are you not?

Mr. CHRISTY. Yes, sir.

Mr. HOSMER. How much additional acre-feet of water was the planned diversion in that?

Mr. CHRISTY. Sir, as a matter of fact, there was never a specific amount decided upon. That project was a plan coordinated with other plans of the State of Colorado to utilize, and it might have gone to 500,000 acre-feet, it might have been a million, all depending on what the overall program of the State of Colorado turns out to be, and the need, particularly predicated on the need in western Colorado for potential use. We do not know that full answer yet.

Mr. HOSMER. It apparently was a substantial amount?

Mr. CHRISTY. Yes. 500,000 acre-feet or better would be a figure, but that was independent.

Mr. ASPINALL. Will my colleague yield for an observation there?

Mr. HOSMER. Yes.

Mr. ASPINALL. As the plan was proposed by the Bureau, it takes considerably over 500,000 acre-feet. That is the importance of the statement by Mr. Silmon Smith.

Mr. HOSMER. I believe the gentleman has established—although there would be a slight amount of deterioration in the quality of the west slope's water, there would be some deterioration by this present project?

Mr. CHRISTY. Did you say quality or quantity?

Mr. HOSMER. Quality.

Mr. CHRISTY. A very small amount. 69,200 acre-feet as compared with a total of 3½ million acre-feet.

Mr. HOSMER. Whenever you take water out, there is some change in the quality.

Mr. CHRISTY. Very, very slight. That is using the quantities that are involved.

Mr. HOSMER. Yes. That is all.

Mr. HARRISON. Does any other member have any questions? If not, we thank you for your testimony, Mr. Christy.

Mr. CHRISTY. Thank you very much.

Mr. HARRISON. Mr. Chenoweth, who will be your next witness?

Mr. CHENOWETH. Under our revised appearance of witnesses we want to present as our next witness Mr. Jean Breitenstein of Denver. He is one of our most prominent Colorado water lawyers and attorney for the Colorado Water Conservation Board. He is the Colorado member of the Upper Colorado River Compact Commission.

Mr. D'EWART. Mr. Chairman, we only have 20 minutes left this morning, and I expect Mr. Breitenstein will have quite a long statement and we will want to cross-question him. I wonder if it would be not advisable to put on a witness that has a brief statement.

Mr. CHENOWETH. I do not know what Mr. Breitenstein is going to present. How long do you plan on running, Mr. Chairman?

Mr. HARRISON. I doubt very much whether we will get much past 12.

Mr. CHENOWETH. I thought possibly you might run until 1 o'clock today. I think, Mr. D'Ewart, these witnesses have been arranged in a certain sequence and any change might upset the orderly presentation.

Mr. D'EWART. I have no objection.

Mr. HARRISON. Go ahead, Mr. Breitenstein.

Mr. ASPINALL. Mr. Chairman, with the understanding that we are going to quit at 12, because we are going to say a few nice things on the floor about our colleague, Mr. Poulson, this afternoon. So I suggest we quit at 12 and have Mr. Breitenstein start again when we reconvene.

Mr. HARRISON. Without objection, we will do that.

Mr. Breitenstein, identify yourself for the record.

STATEMENT OF JEAN S. BREITENSTEIN, ATTORNEY FOR THE COLORADO WATER CONSERVATION BOARD, DENVER, COLO.

Mr. BREITENSTEIN. My name is Jean S. Breitenstein. I am a lawyer with offices at 718 Symes Building, Denver, Colo. I am now, and for more than 12 years have been the attorney for the Colorado Water Conservation Board. As such attorney, I have represented Colorado in numerous interstate water cases before the United States Supreme Court and in the negotiation of interstate water compacts. The Colorado Water Conservation Board is an official agency of the State of Colorado, charged with the responsibility of conserving, protecting, and developing the water resources of the State of Colorado.

I am the Colorado member of the Upper Colorado River Commission, which is the official agency set up by the upper Colorado River Basin compact for the administration of that compact. In this capacity I succeeded, less than a year ago, the late Judge Clifford H. Stone.

The Fryingpan-Arkansas project is one to which the official agencies of the State of Colorado have given much study over a period of years.

The Colorado Water Conservation Board, I may say, is made up not only of the Governor, the Attorney General, the State Engineer, the director of the State planning board, but also of nine members appointed by the Governor representing the major stream basins of the State. There are on the board 4 members from the Colorado River Basin drainage, 1 from the Yampa drainage, 1 from the main stem of the Colorado, 1 from the Gunnison River, and 1 from southwestern Colorado.

The Colorado Water Conservation Board has unanimously, without any dissent, approved the Fryingpan-Arkansas project. I have here a certified copy of the minutes of the board approving the project, and I would like to submit those for the record. It will be noted that this includes the comments of the State of Colorado on this project, submitted pursuant to the 1944 Federal Flood Control Act.

Mr. D'EWART. Mr. Chairman, I suggest that this certified copy be made a part of the record at this point.

Mr. HARRISON. If no objection, it will be so admitted.

(The documents referred to are as follows:)

EXTRACT FROM MINUTES OF AUGUST 7, 1951, MEETING OF THE COLORADO WATER CONSERVATION BOARD RELATING TO THE OFFICIAL COMMENTS AND RECOMMENDATIONS OF THE STATE OF COLORADO ON THE INITIAL DEVELOPMENT, GUNNISON-ARKANSAS PROJECT ROARING FORK DIVERSION, COLO.

(Project Planning Report No. 7–8a, 49–1, Bureau of Reclamation, Department of the Interior, dated January 1950)

AUGUST 7, 1951.

The SECRETARY OF THE INTERIOR:

SIR: On behalf of the State of Colorado and pursuant to section 1 of the act of December 17, 1944 (58 Stat. 887), there are herewith transmitted the comments, views, and recommendations of the State of Colorado concerning the initial development of the Gunnison-Arkansas project, Roaring Fork diversion, being Project Planning Report No. 7–8a. 49–1, Bureau of Reclamation, Department of the Interior, dated January 1950.

These comments, views, and recommendations are submitted under the authority of chapter 265, Session Laws of Colorado, 1937, creating the Colorado Water Conservation Board, and defining its functions in accordance with the designation of such board by the Governor of the State of Colorado pursuant to section 1 of the act of December 17, 1944 (58 Stat. 887) as the official State agency to act in such matters.

The comments, views, and recommendations of Colorado submitted herewith are as follows:

1. Colorado recognizes that the waters of the Arkansas River in the Colorado portion of the upper Arkansas River Basin are over-appropriated and that serious loss in crop production on presently irrigated farmland results. Stabilized agricultural economy in the area requires supplemental water supplies. Additional quantity and better quality of domestic and municipal water are critically needed in the Arkansas Valley, Colo., for the cities of Colorado Springs, Pueblo, and various valley towns. New sources must be found if necessary and dependable water supplies for a growing population are to be provided. The best economy and the most efficient use of limited sources of water require multiple-use project development which will serve the needs of agriculture, requirements for domestic and municipal water supplies, flood control, the preservation of recreational and fish and wildlife values and the production of hydroelectric power. Neither further retirement of presently irrigated land to meet necessary and pressing municipal requirements for water nor project development designed to serve a single purpose would be consonant with the most desirable economic advancement of Colorado, or with the highest utilization of its limited water supplies.

2. Colorado concurs in the findings of the project report that the project described therein is engineeringly feasible, economically justified, and financially

feasible, and that the proposed plan for the payment of reimbursable capital costs is in accordance with the Federal reclamation law.

3. The allocation of capital costs as between the various project features, including a nonreimbursable allocation to flood control and fish and wildlife preservation, is considered reasonable.

4. It is recognized that the allocation to the various project purposes of annual operation, maintenance, and replacement costs has been made to correspond to the allocation of capital costs. Colorado recommends that an authorization of the project shall not preclude a readjustment of operation, maintenance and replacement charges as between municipal and domestic users and power and irrigation users which might more accurately reflect the actual use of water by said users.

5. It is also recommended that the authorization of the project include the valley pipe line as referred to in said report for the use and benefit of the various valley towns.

6. Colorado calls attention to the fact that the project, its operation, maintenance, and the use of Colorado River water thereunder, must be subject to the provisions of the Colorado River compact of November 24, 1922, (H. Doc. 605, 67th Cong. 4th sess.), the Upper Colorado River Basin compact of October 11, 1948 (Public Law 37, 81st Cong. 1st Sess.), and the Boulder Canyon Project Act of December 21, 1928 (45 Stat. 1057–1064). Further reference to this matter appears in these comments in connection with the subject of Operating Principles. The features of the project and their operation for the storage and reregulation of the native waters of the Arkansas River are subject to the provisions of the Arkansas River compact of December 14, 1948 (Public Law 82, 81st Cong., 1st sess.) between Colorado and Kansas. On July 24, 1951, the Arkansas River Compact Administration, an agency created by the compact for its administration, after a review of the project report and consideration of the effect of the operation of the proposed project on the administration of the provisions of the compact, adopted the following resolution:

"Whereas, there has been submitted to the States of Colorado and Kansas by the Secretary of the Interior, in accordance with provisions of section 1 of the 1944 Flood Control Act, a report of the Bureau of Reclamation on the proposed initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado (Project Planning Report No. 7–8a.49–1) and such States are required to transmit to the Secretary of the Interior their respective official comments and recommendations on the report and proposed development; and

"Whereas, the Arkansas River Compact Administration, an official interstate body created by the Arkansas River compact and charged with the administration of such compact, is interested in the proposed development to the extent that its construction and operation shall not interfere with the rights, interests and obligations of Colorado and Kansas under the compact; now be it

Resolved by the Arkansas River Compact Administration that the following comments and recommendations relating to said report of the Secretary of Interior, to wit;

"The Arkansas River Compact Administration submits these comments and recommendations to the Governors of Colorado and Kansas respecting the proposed initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado, namely:

"1. The administration understands that the project plan proposes:

"(*a*) The importation by appropriate project works of approximately 70,000 acre-feet of water a year from the Colorado River Basin to the Arkansas River Basin for supplemental irrigation and domestic water supplies in Colorado and for the production of hydroelectric energy.

"(*b*) In connection with such importation of water and its regulation in the Arkansas River Valley by project works, the reregulation of native waters of the Arkansas River (the term 'native waters', is herein used, being those waters covered and defined by article III–B of the Arkansas River compact).

"2. The interstate water relations of Colorado and Kansas with respect to the Arkansas River do not justify any objection to the proposed project development for the importation of Colorado River water (described in subparagraph (a), above).

"3. The reregulation of native waters of the Arkansas River (native waters being as above mentioned) concerns the Arkansas River Compact Administration and both Colorado and Kansas in complying with the provisions of the Arkansas River compact and maintaining the benefits and obligations of the two States under that compact. To that end it is recommended to the Governors of Colo-

rado and Kansas, and expressed as a policy of the Arkansas River Compact Administration, that the initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado, as set forth in Project Planning Report No. 7-8a.49-1 of the Bureau of Reclamation, be approved; provided, however, that there shall be no reregulation of native waters of the Arkansas River as proposed in such report until a plan of operation, rules, regulations, procedures and agreements in the furtherance thereof, including any pertinent agreements between the Corps of Engineers and the Bureau of Reclamation, shall have been submitted to, and approved by, the Arkansas River Compact Administration and the affected water users.

"4. It is the purpose and intent of these recommendations that the proposed project development shall not interfere with or defeat the rights, interests and obligations of Colorado and Kansas under the Arkansas River compact.

"be transmitted to the Governors of the States of Colorado and Kansas and such Governors be and are hereby requested to submit the same to the Secretary of Interior with their official State comments and recommendations upon said proposed project and development."

Colorado interprets and understands that paragraph 3 of the resolution of the Arkansas River Compact Administration is controlled by paragraph 4 thereof; and that the words "affected water users" in said paragraph 3 means only water users in the State of Colorado so long as Colorado complies with the terms of said compact.

7. Paragraph 74, pages 27 to 33, both inclusive, under the heading "Operating Principles," contains the operating principles which the report explains were recommended by a policy and review committee set up by the Colorado Water Conservation Board to study and review plans and reports on the first stage of the Gunnison-Arkansas project. This committee was composed of representatives of the board, the Colorado Game and Fish Commission, western Colorado, the Arkansas Valley and the city of Colorado Springs. The report fails to explain that such committee was required to report to the Colorado Water Conservation Board and its recommendations would not be effective until approved by that board. The report on the project does not disclose what action was taken by the board nor does it contain all of the recommendations of the policy and review committee. Some of the matters contained in the report of the committee are not strictly concerned with the project operation, but are related to, and constitute a material part of, such operating principles."

The recommendations of the policy and review committee were revised and approved by the Colorado Water Conservation Board on February 22, 1951. (See letter with attachments of the director of the Colorado Water Conservation Board dated February 27, 1951, and addressed to the director of region 7, Bureau of Reclamation.) Paragraph 74, pages 27 to 33, both inclusive, of the report correctly sets forth that part of the report of the policy and review committee, designated article II Operating Principles as revised and approved by the Colorado Water Conservation Board, but it omits other material portions of the committee's report as revised and approved by the board, namely:

* * * * * * *

"The action of the policy and review committee will be presented to the Colorado Water Conservation Board for such action as the board deems proper.

"The action of the Colorado Water Conservation Board will be incorporated in the official comments of the State of Colorado, made pursuant to section 1 of the 1944 Flood Control Act.

"The authorization of the project will recognize the operating principles approved by the Colorado Water Conservation Board.

"Prior to commencement of project construction, the following conditions precedent must be satisfied:

"(a) There will be executed a payment contract between the Eastern Colorado Conservancy District and the United States in which will be incorporated the approved operating principles.

"(b) There will be executed such contract with the Twin Lakes Reservoir & Canal Co. as is necessary make effective the approved operating principles.

"(c) The eastern Colorado conservancy district will firmly bind itself to the operation of the project in accordance with the approved operating principles.

"It is recommended that this project shall hereafter be referred to as the Fryingpan-Arkansas project. Approval of this provision by eastern Colorado representatives shall not be implied as an abandonment of their expressed intention to obtain approval of a project from the Gunnison River nor shall approval of this provision by western Colorado representatives be construed as any consent

on their part to the authorization of a project for the exportation of water from the Gunnison River to eastern Colorado.

"The committee recognizes that the approval of this report is not to serve as a precedent for example for the approval of any other transmountain diversion of major proportions not heretofore authorized.

"The policy of the State of Colorado as initiated in statewide meetings held under the auspices of the State planning commission at Denver and Grand Junction, and as evidenced by resolutions dated June 15, 1935, and February 28, 1936, was not adhered to because surveys of the character mentioned in said resolutions were not available to the committee. Nothing herein contained shall be deemed or construed as a precedent for Federal projects not heretofore authorized until adequate surveys have been made and the necessary data are available so that a general allocation or apportionment of the waters of the Colorado River, allocated for consumptive use in the State of Colorado, under the upper Colorado River Basin compact, may be made between eastern Colorado and western Colorado as distinguished from an attempt to execute such State policy by a piecemeal or series of partial allocations, any of which may seriously interfere with a complete, overall State program."

Paragraph 88 of the report under the heading "Recommendations," states:

"E. The project be operated under the direction of the Secretary of the Interior in accordance with the operating principles set forth in this report or as principles may be modified in the future by agreement between the Secretary and the commission established by the State of Colorado."

It is understood that the operating principles mentioned in this quotation from the report are those set forth in paragraph 74, pages 27 to 33, both inclusive, and that the "commission" mentioned therein is the commission which may be created in the manner and for the purpose set forth in paragraph 17 of the operating principles. (See p. 33 of the report.)

Colorado's approval of the plans set out in the report and of the authorization of the project is conditioned upon compliance with the operating principles set forth in the report (see par. 74, pp. 27 to 33, both inclusive) and also full recognition and compliance with those portions of the policy and review committee's report, as revised and approved by the Colorado Water Conservation Board, which are omitted from the report and which are hereinabove set out; except that as to the name of the project, it is recommended and urged that in an appropriate manner the project should hereafter be known and referred to as the Fryingpan-Arkansas project. It is noted from the letter of the Commissioner of Reclamation to the Secretary of the Interior, contained in the report, that it is stated:

"* * * This development is designed as a self-contained unit, and its construction would not imply a commitment for developing future water supplies in the Gunnison River Basin for diversion to the Arkansas River Basin."

Colorado approves this statement but such a statement lends weight to the reason for changing the name of the project as herein recommended. Diversion from the Fryingpan River to the Arkansas River has no relation to the Gunnison River. It is not proposed under this self-contained project to divert water to the Arkansas Basin from the Gunnison River. The identification of the project on the cover of the report and used throughout the report—Initial Development, Gunnison-Arkansas Project, Roaring Fork Diversions, Colorado—is a misnomer and misleading and in the future may, in some manner, lead to unwarranted implications. In addition to the recommended change in project identification, Colorado requests that the project be authorized as the Fryingpan-Arkansas project.

8. The Colorado River Water Conservation District is an agency created by State statute (ch. 20, p. 997, Session Laws of Colorado, 1937) for the conservation, use, and development of the water resources of the Colorado River and its principal tributaries. The area comprised within the district includes seven counties and a part of an eighth county within the natural drainage of the Colorado River in western Colorado. The Southwestern Water Conservation District is an agency created by State statute (ch. 231, p. 866, Session Laws of Colorado, 1941) for the conservation, use, and development of the water resources of the San Juan and Dolores Rivers and their principal tributaries. The district comprises seven counties and part of an eighth county within the natural basin of the Colorado River in western Colorado. When the Board of Directors of each of these two districts passed upon the report and recommendations of the policy and review committee, including the operating principles, as revised, their separate resolutions, among other things, contained the following language:

COLORADO RIVER WATER CONSERVATION DISTRICT BOARD

"*Be it further resolved*, That in the opinion of the board of directors of the Colorado River Water Conservation District, the Colorado Water Conservation Board should adopt a resolution that no further federally financed transmountain diversions from the natural Colorado River Basin should be approved for authorization until the surveys described in said section IV above are completed and and the need for the use of water in western Colorado has been determined." (Sec. IV, to which reference is made, is shown by the two paragraphs contained in the report of the policy and review committee, quoted on p. 5 of these comments, and commencing with the words "The committee recognizes" and "The policy of the State," respectively.)

SOUTHWESTERN WATER CONSERVATION DISTRICT BOARD

"* * * This Board feels it should interpose no objection to the proposed diversion, but with the clear and distinct understanding this consent shall not be considered as waiver of objections to any other federally financed transmountain diversion of the waters of the Colorado River; and with the further understanding that the State Water Conservation Board of the State of Colorado shall not approve of any other such federally financed diversion project until the studies of the needs of the western slope be fully completed so that an intelligent decision relative to such needs may be given. We feel that after the many and long delays in making such studies and the promises made by some high in authority in the Reclamation Service, the western slope is entitled to have such studies completed in the very near future, and that no further federally financed transmountain diversions should be made without the completion of such investigations."

At the meeting of the Colorado Water Conservation Board on February 22, 1951, when the revised report of the policy and review committee, including revised operating principles for this project, was approved by the Colorado Water Conservation Board, the board unanimously approved two motions which provided that the resolutions, above mentioned and partially quoted, submitted by the Colorado River Water Conservation District and the Southwestern Water Conservation District be accepted and approved as a policy of the Colorado Water Conservation Board.

9. Paragraph 68 commencing on page 23 in about the middle thereof states: "The proposed basic rate of $3.60 per acre-foot at the Pueblo Reservoir has been determined to be within the payment capacity of the water users." It is respectfully requested that such proposed charge should not constitute either a maximum or a minimum charge nor should it indicate a uniform charge or indicate where water will be used or whether or not consideration in fixing charges can be given to return flows from such use. The figure is purely an estimated average charge per acre-foot and the district in allocating such water should be allowed complete latitude in connection therewith.

10. Paragraph 68 as contained on page 24 has the following sentence: "The district would assume responsibility for delivery of irrigation water." This responsibility is certainly not that of the United States, but neither should the district be responsible for patrolling every ditch. If water is turned out from the reservoir, it is immediately subject to the control of the State water officials, who should be advised of such rights in water and who are charged with the responsibility of delivering the same to the correct ditch. It is contemplated that each ditch will do its own policing.

11. Attention is directed to paragraph 68 on page 24 and the sentence reading "This district or possibly another entity would contract with the Government for Federal construction of the specific municipal water system." * * * It is contemplated that a proper repayment entity under Colorado laws such as a metropolitan water district may be created for this particular purpose or that a joint contract executed between the various municipalities utilizing this feature will be executed and the project's authorization should be sufficiently broad to authorize any such contract deemed desirable.

12. Page 24 in the tabulation on function and source of revenue contains the following: District tax (132 million at 1 mill minus), 10 percent, $119,000.

Attention is directed to the fact that under Colorado law, 3 possible rates are in existence; one-half of 1 mill, being the rate prior to delivery of project water; 1 mill, being the rate after such project water becomes available, and prior to the time of any deficiency or default; and 1½ mills in the event of default or deficiency. Levies in any of these three categories may be less but cannot exceed these figures.

13. Attention is directed to page 24, the item captioned "Municipal and Industrial Water, Municipal Supplies (38,000 acre-feet at various rates)." It is respectfully pointed out that it may be some years before this amount of water is utilized and that the quantity indicated is but an estimate which may be exceeded ultimately. The authorization of the project should not preclude the possibility of charging municipalities lower rates during the period of time that such water is not actually required for the municipal needs. Pueblo might ultimately require 10,000 acre-feet and desire at the outset to commit herself for the immediate purchase of 5,000 acre-feet. Until such time as she actually requires 10,000 acre-feet of water, she should not be charged therewith at the proposed rates. The project authorization should permit charging lower rates until the water is used for municipal purposes.

14. Attention is directed to paragraph 70 on page 25. It is respectfully suggested that the report makes no reference to potential evaporation savings by moving shallow plains storage reservoirs upstream and storing the same quantities of water at higher altitudes.

15. Attention is directed to a statement in the middle of page 38, reading:

"Such contracts should include provisions for the right of renewal thereof once or more than once under stated terms and conditions mutually agreeable to the parties and subject to increase or decrease in rates corresponding to increase or decrease of cost of construction and of operation, maintenance, or improvement or deterioration in the payment ability of the water users."

This sentence must be reconciled with the existing Colorado law which is set forth in chapter 266 of the Session Laws of Colorado, 1937, being section 19 thereof, which requires the petition for allocation of water filed by the water user and addressed to the conservancy district to contain therein the charge to be imposed for each acre-foot of water. The statute requires the petition to contain the following: (1) Name of applicant, (2) quantity of water to be purchased or otherwise acquired, (3) descriptions of lands upon which the water will be used and attached, (4) price per acre-foot to be paid, (5) whether payments will be made in cash or annual installments, (6) agreement that the annual installments and the charges for maintenance and operating shall become a tax lien upon the lands for which such water is petitioned and allotted and to be bound by the provisions of this act and the rules and regulations of the board. While it was contemplated initially that the price per acre-foot would be fixed, such as, in the case of the Colorado-Big Thompson project, $1.50 per acre-foot, it is believed that this statutory provision can be complied with by stating the price per acre-foot shall be not less than $____ nor more than $_____.

Respectfully submitted.

DAN THORNTON,
Governor, State of Colorado, and Ex-Officio Chairman of the Colorado Water Conservation Board.

CLIFFORD H. STONE,
Director, Colorado Water Conservation Board.

Without further discussion a vote was taken and the motion unanimously carried and was declared adopted.

I certify the official comments and recommendations of the State of Colorado on the initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado, is a true and correct copy, as it appears in the minutes of the August 7, 1951, meeting of the Colorado Water Conservation Board.

IVAN C. CRAWFORD,
Director.

Mr. BREITENSTEIN. The scope of this project has been explained in part by Mr. Christy, and the engineering features of it will be given by other witnesses who are much more qualified than I.

As the committee knows from the presentation thus far, the project contemplates the diversion of some 69,200 acre-feet of water from the headwaters of the Fryingpan River and Hunter Creek that are tributaries to the Roaring Fork, which is a triburary of the Colorado, to the Arkansas River Basin in eastern Colorado.

Of course this fact, that the project contemplates the use of Colorado River water, raises the question of law governing the use of Colorado River water and the availability of Colorado River water for this project.

I am sure the committee is familiar with the 1922 Colorado River compact, under which the basin of the stream was divided into an upper and lower basin, the division point being Lee Ferry, Ariz.

Article 3 of that compact gives to the upper basin the right to the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum. That compact did not divide the upper basin water among the States of the upper basin. To accomplish that, another compact was made in 1948 signed by the States of Arizona, Utah, New Mexico, Wyoming and Colorado. Under that compact Colorado is entitled to the use of 51.75 percent of the water apportioned to the upper basin by the Colorado River compact. Roughly, that amounts to something over 3,600,000 acre-feet of water per annum. This proposed project will utilize less than 70,000 acre-feet of that amount.

As has been indicated already, there is in Colorado a difficult problem between the east slope and west slope. It is an interstate problem. The query always is whether or not a proposal to divert water from the western slope to the eastern slope is proper.

When this project was first up before the Colorado Water Conservation Board, that agency realized the seriousness of that problem. Accordingly, it set up what was known as a policy and review committee. On that committee western Colorado and eastern Colorado were represented. Also, because of the recreational values in the project area, a member from the Colorado Game and Fish Commission and a member from the Federal Fish and Wildlife Service was on that committee.

That committee worked for about 2½ years studying the problems connected with this proposed transmountain diversion. Public meetings were held and everyone who wished had his opportunity to have a hearing before that commission.

After agreements on general principles were reached, and they were reached unanimously by that committee, the committee itself set up a drafting committee to put down in writing operating principles which would carry out the agreements represented by the committee.

I was the chairman of the drafting committee.

The drafting committee had many sessions, and it came out with the set of operating principles which appear in Senate document 106. Unfortunately, as in most water matters, those are quite complicated. It might be helpful, if the committee wished, that I go through them generally without trying to get into too much complicated detail.

Mr. ASPINALL. Mr. Breitenstein, before you start that. Did you hold any meeting of the Colorado Water Conservation Board or any committee of the Colorado Water Conservation Board in the area of the Roaring Fork itself close to Aspen?

Mr. BREITENSTEIN. Congressman, I was not on the policy and review committee. I am advised that a meeting was held by that committee in Glenwood Springs at which all water users in the area were invited to attend and be heard. I cannot tell you of my own knowledge as to what occurred, but there was a meeting held in that area for the local water users.

Mr. ASPINALL. The reason for my question is the committee is in receipt of a telegram this morning stating that no one was privileged to have a hearing in the area concerned as far as western Colorado is concerned.

Mr. BREITENSTEIN. The records of the water conservation board, Congressman, reflect that that meeting was held and invitations were extended to all the local water users. I am advised by some who were in attendance that the local water users were very scarce in their appearances at the meeting, but they did have an opportunity to be heard.

The operating principles recognize that this project contemplates the maximum conservation and use of the diverted waters, the protection of both existing and potential western slope water users in accordance with the declared policy of Colorado, and the preservation of recreational values.

Now to attain those ends numerous conditions are set forth.

The first provision is made for the construction of the Aspen Reservoir on the Roaring Fork River above the town of Aspen, Colo. This reservoir has a capacity of 28,000 acre-feet, all of which will be available for replacement purposes in western Colorado.

By section 3 of the operating principles, it is provided that the cost of construction and the perpetual operation and maintenance of the Aspen Reservoir is a charge against the project. Also it is required that the Aspen Reservoir shall be completed before any water is diverted under the project to eastern Colorado.

Mr. ASPINALL. You remember they stated it shall be completed. It has been stated they meant it should be filled. Was that in the minds of the committee?

Mr. BREITENSTEIN. The word used, as I recall, Congressman, was "completed." Now an engineer had better talk about the filling of the reservoir. But, as I understand, the flows there are adequate, so there is every reason to believe that the reservoir will be filled to that capacity annually.

Mr. ASPINALL. Of course, there is some doubt in the minds of the residents in that area as to just what was meant, and that is the reason I asked the question.

Mr. BREITENSTEIN. I recall, Congressman, no dicussion as to whether or not the word "completed" included "filled." It does definitely include the completion of the physical works at the Aspen Reservoir.

Mr. DAWSON. In other words, what you are saying is that they are going to build the reservoir for you and then going to take your water away from you and use it on the other side?

Mr. BREITENSTEIN. No, Congressman, that is not it. The water which is diverted is taken from Fryingpan River and Hunter Creek, not taken from Roaring Fork. This reservoir is on another stream from the stream which is intercepted to go to eastern Colorado.

Mr. ASPINALL. Of course, the problem is this: This year we have the first of May about 75 percent of the normal flow of the 10 years 1941 to 1950. Now if we should have normal snowfall, it would be 50 percent. Then you would not build a reservoir. Of course, over the watershed you might have a normal fall of snow. The people up there are just wondering whether or not they are to have a reservoir or whether they are to have it filled.

Mr. BREITENSTEIN. Congressman, I am just a lawyer. I am not an engineer or geologist. I cannot answer that question. There are those here who will appear before you that are qualified to do that.

The operating principles provide that the primary purpose of the Aspen Reservoir is to furnish compensatory storage in like manner

as if the project were constructed by a water conservancy district organized under the applicable Colorado statutes. Now that is important because the Colorado law provides that when there is an exportation of water from the Colorado River system by a water conservancy district, that district must furnish at its cost, facilities in western Colorado for compensatory storage to protect all existing and potential uses in western Colorado. And it also provides that it shall protect them against any increase in costs because of the transmountain diversion.

Section 6 of the principles defines the replacement capacity of the reservoir and provides the purposes for which such replacement capacity can be used, and no charge is to be imposed for any water which is released from this replacement capacity.

The next section defines surplus capacity and provides for the release of water from that. For water released from the surplus capacity a charge may be imposed.

The project diversions from Lime Creek are restricted to the months of May and June. That is the time of heavy runoff. That is because of anticipated demands on Lime Creek.

Section 9 is designed to protect recreational values, including fishing, and requires the maintenance of certain minimum flows at designated points on the Fryingpan River.

Now the project intercepts waters at the headwaters of the Fryingpan River. This section 9 requires that the minimum flows which were recommended by the Colorado Game and Fish Commission and the Fish and Wildlife Service be maintained at points lower down on the stream in order to protect the recreational values and fishing values of that area.

The next section pertains to diversions from, and the maintenance of, certain minimum flows on the Roaring Fork River. Now this is important because the Twin Lakes Reservoir & Canal Co. holds decrees for the diversion of substantial quantities of water from the headwaters of the Roaring Fork River. The Twin Lakes Co. has not utilized the full amount of its decrees because of a lack of sufficient storage capacity on the eastern side of the mountains. Now if it did increase that storage capacity, then it could increase its diversions, and that would have an effect on the recreational values of the Roaring Fork area above Aspen.

In order to protect against that, certain minimum flows are required to be maintained on the Roaring Fork River. And here again, the required minimum flows are those which were determined by the Colorado Game and Fish Commission and the United States Fish and Wildlife Service.

The Fryingpan-Arkansas project is so set up that it can by exchange furnish to the Twin Lakes Co. water from other sources than the Roaring Fork, and, hence, it will be possible to maintain these minimum flows through the operation of the project.

As a further protection to those interested in recreation, section 11 of the operating principles provides that the project shall be constructed and operated and the water surfaces of project reservoirs shall be open to the public for recreational purposes except, of course, for those areas which are necessarily served by the operating agencies.

Section 12 recognizes that the primary need of water in the Arkansas River Basin is for domestic purposes and provides that the use of

this imported water for domestic purposes shall have preferences over those claiming or using water for other purposes.

The operating principles further require the project be operated in such a manner as to secure the greatest benefit from the use and re-use of imported water.

Section 14 is designed as a further protection to the western slope of Colorado.

This committee is, of course, familiar with the Colorado-Big Thompson project. In the authorization of that project an agreement was made between the west slope interest. That is set forth in what has become known as Senate Document No. 80. Provision was there made for construction of Green Mountain Reservoir to furnish replacement or compensatory storage to protect existing and potential west slope uses.

There have been some differences of opinion in regard to the interpretation and effect of Senate Document No. 80. In order to assure the west slope people that there is no intent to impinge upon whatever rights they may have under Senate Document No. 80, the operating principles provide that such rights shall not be impaired or diminished by the Fryingpan-Arkansas project.

The principles further recognize those documents which now constitute the law of the Colorado River. That is the 1922 Colorado River compact, the 1948 upper Colorado River Basin compact, and the Boulder Canyon Project Act.

As a further protection to uses of water on the west slope, it is provided that in the event it is at any time necessary to curtail, shut down any project uses in order to assure compliance with the aforementioned documents which constitute the law of the river, then before there is any curtailment of the right to store in Aspen Reservoir, the diversions for use in eastern Colorado must be curtailed in a quantity not in excess of the capacity of that reservoir.

Section 16 refers to the acquisition of certain rights and titles by the Secretary of the Interior at his option.

The concluding section of the operating principles is somewhat of an innovation. The members of the policy and review committee realized that we mortals cannot look into the crystal ball and foretell what the future may be, and they recognized that any set of operating principles, no matter how carefully conceived, might not work satisfactorily or fairly in the future. Accordingly, they made provision for the creation of a commission upon which the east slope, the west slope, the United States, and the State of Colorado shall be represented. This commission is charged with the duty to study the operation of the project and to make such recommendations or changes as it believes necessary in the operating principles.

Mr. HARRISON. I see we are not going to be able to finish your complete statement. I was wondering whether or not this would be a suitable place to stop and continue at 9:30 tomorrow morning, which will allow members to get the continuity of your statement. If that is agreeable with you.

Mr. BREITENSTEIN. Yes.

Mr. CHENOWETH. Mr. Chairman, if it is in order, I would like to suggest that such part of Mr. Breitenstein's prepared statement as he has not read be made a part of the record at this point.

Mr. HARRISON. Without objection it is so ordered.

(The statement referred to is as follows:)

A Statement Supporting the Proposed Fryingpan-Arkansas Water Development, by Jean S. Breitenstein

COLORADO RIVER WATER

The scope of this project either has been or will be given to the committee by other witnesses. Its various features should properly be described by a trained engineer. Suffice it to say that the project contemplates a diversion of approximately 70,000 acre-feet of water a year from the Fryingpan River and Hunter Creek. This water is taken through the Continental Divide by a tunnel and emptied into the headwaters of the Arkansas River. Thus we have a transmountain diversion project where water is taken from tributaries of the Colorado River and thereafter utilized in the basin of a stream which flows into the Mississippi River. This factor requires that some comment should be made on the various documents which control the use of the waters of the Colorado River.

As the committee well knows, the seven Colorado River Basin States in 1922 negotiated a compact setting forth basic principles to control the use of Colorado River water. By this compact, which was proclaimed effective by the President of the United States on June 25, 1929, and which has now been ratified by all Colorado River Basin States, an apportionment of water is made to the lower basin and to the upper basin. The dividing point between the two basins is Lee Ferry which is located in Arizona a short distance below the Utah boundary line. The compact apportions to the upper basin the beneficial consumptive use of 7,500,000 acre-feet of water per annum and makes no division of this quantity of water among the States within which the upper basin lies.

In 1948 the upper basin States completed a compact for the division among them of this 7,500,000 acre-feet of water per annum. That compact was ratified by the States and is now effective. Under its terms Colorado has the right to consume beneficially 51.75 percent of the upper basin's share of Colorado River water. The administration of the Upper Colorado River Basin compact is, as I have said, under the Upper Colorado River Commission of which I am a member.

The comparatively small quantity of water which is proposed to be taken from the Colorado River system for use in the Arkansas River Basin is well within the Colorado share of Colorado River water. The availability of such 70,000 acre-feet of water, so far as I know, has not been questioned.

OPERATING PRINCIPLES

The matter of the use in Colorado on the eastern slope of water taken from the Colorado River system has long presented a difficult intrastate problem. With a realization of this situation those interested in the Fryingpan-Arkansas project, early in the investigation and study of that project, presented the matter to the Colorado Water Conservation Board as the official State agency having charge of such matters. That board created what was known as a Policy and Review Committee on which there were representatives of the two slopes and, because of the interest in recreational values, there were members on the committee from the Colorado Game and Fish Department and the Federal Fish and Wildlife Service. This committee consulted with representatives of the Bureau of Reclamation, leading engineers in private employment, lawyers familiar with the problems and water users on both sides of the Continental Divide. After more than 2½ years of effort, the Policy and Review Committee unanimously agreed upon a set of operating principles which in its opinion will fairly and equitably protect the rights of those interested in the development of the western slope and at the same time permit the diversion of the water to the Arkansas Basin where it is badly needed for domestic and agricultural uses.

A copy of these operating principles are set forth in Senate Document 106, 82d Congress, second session, pages 19–23. The recommendations of the Regional Director of the Bureau of Reclamation approved by the Commissioner of Reclamation and the Secretary of the Interior are that the project shall be operated in accordance with these operating principles. Unavoidably these principles are rather complex. Perchance, for the record, it may be well to summarize the more important provisions.

The operating principles recognize that the project contemplates the maximum conservation and use of the diverted waters, the protection of both existing and potential western slope water uses in accordance with the declared policy of Colorado, and the preservation of recreational values.

Section 1 contains the definition of terms.

Section 2 provides for the construction of the Aspen Reservoir on the Roaring Fork River above Aspen, Colo., with a capacity of 28,000 acre-feet which shall be available for replacement purposes in western Colorado.

By section 3 the cost of construction and perpetual operation and maintenance of the Aspen Reservoir is a charge against the project.

Section 4 requires that the Aspen Reservoir shall be completed before any water is diverted to eastern Colorado.

Section 5 states that the primary purpose of Aspen Reservoir is to furnish compensatory storage in like manner as if the project were constructed by a water conservancy district organized under the Colorado Water Conservancy Act. In this connection is should be mentioned that such act (Colo. S. L. 1943, chapter 192) provides in substance that any facilities designed for the exportation of water from the natural basin of the Colorado River by a district organized under the act shall be so constructed and operated that present appropriations of water and prospective uses of water for consumptive use purposes in the natural basin will not be impaired or increased in cost because of the diversion.

Section 6 defines the replacement capacity of the Aspen Reservoir and provides the purposes for which such replacement capacity may be used. No charge is imposed for water released from the replacement capacity.

Section 7 defines surplus capacity, provides for the release of water therefrom, and permits the imposition of a charge for water released from the surplus capacity.

Section 8 limits project diversions from Lime Creek to the months of May and June because of anticipated demands upon Lime Creek.

Section 9 is designed to protect recreational values, including fishing, and requires the maintenance of certain minimum flows at designated points on the Fryingpan River.

Section 10 pertains to diversions from, and the maintenance of stated minimum flows on, the Roaring Fork River. This section is important and is required because of private enterprise, the Twin Lakes Reservoir & Canal Co., holds Colorado decrees for the diversion through its facilities of substantial quantities of water from the headwaters of the Roaring Fork River. The Twin Lakes Co. has thus far been unable to utilize their rights to the fullest extent because of insufficient storage capacity on the eastern side of the mountains. In the event of an increase in that storage capacity the Twin Lakes Co. could divert from the headwaters of the Roaring Fork such quantities of water that the recreational values of the Roaring Fork area might be affected. The Fryingpan-Arkansas project is so set up that it can by exchange furnish to the Twin Lakes Co. water from other sources than the Roaring Fork and, hence, it will be possible to maintain minimum flows as recommended by the United States Fish and Wildlife Service and the Colorado Game and Fish Commission. This is a desirable protection to the Aspen area which is nationally recognized for its recreational values.

Section 11 is a further protection to those interested in recreation. It provides that lands acquired for project construction and operation and water surfaces of project reservoirs will be open to the public for recreational purposes, except in instances where the area is necessarily reserved by the operating agency.

Section 12 recognizes the need of additional water in the Arkansas River Basin for domestic purposes and requires that the project be operated in such a manner that those in eastern Colorado using project water imported from the Colorado River Basin for domestic purposes shall have preference over those claiming or using the water for other purposes.

Section 13 states that the project will be operated in such a manner so as to secure the greatest benefit from the use and reuse of imported project water.

Section 14 is very important. The committee is no doubt familiar with the Colorado-Big Thompson project. In the authorization of that project it was required that the project should be constructed and operated in conformity with an agreement between west slope and east slope interests. That agreement is set forth in Senate Document 80, 75th Congress, first session. Provision is there made for the construction of Green Mountain Reservoir to furnish replacement or compensatory storage for existing and potential west slope uses. Some differences of opinion have arisen in regard to Senate Document 80. In order to assure the west slope people that there is no intent to impinge upon whatever rights they have under Senate Document 80, section 14 provides that such rights shall not be impaired or diminished by the Fryingpan-Arkansas project.

Recognition of those documents which now constitute the law of the Colorado River is given by section 15 which provides that the operation and use of the project shall be subject to the 1922 Colorado River Compact, the 1948 Upper Colorado River Basin Compact, and the Boulder Canyon Project Act. To protect

further the west slope uses it is provided that in the event of necessity to curtail any project uses in order to secure compliance with the aforementioned documents, then before there is any curtailment of the right to store in Aspen Reservoir the diversions for use in eastern Colorado must be curtailed in a quantity not in excess of the capacity of that reservoir.

In section 16 the Secretary of the Interior is given the option to require the transfer to the United States of rights initiated or acquired for the project in eastern Colorado except, of course, the present vested rights of Colorado water users. Rights to store water in the Aspen Reservoir shall be acquired under the applicable Colorado law as is required by the existing Federal reclamation laws and shall be held in the name of the United States.

The concluding section, section 17, is somewhat of an innovation. The policy and review committee recognized the extreme difficulty in setting up a formula which can be fair and equitable under future conditions which cannot be foreseen. Accordingly, provision is made for a commission upon which the east slope, the west slope, the United States, and the State of Colorado are represented. This commission is empowered to study the operation of the project with particular regard to the agreed operating principles and to make such recommendations for changes as it believes may more nearly bring about the attainment of the ends sought by the operating principles.

WESTERN SLOPE APPROVAL

After the operating principles were agreed upon, they were submitted to the official agencies representing the western slope. The Colorado River Water Conservation District is an official, quasi-municipal agency representing the western Colorado area within which the main stem of the Colorado River is located, with the exception of Grand County. Pitkin County, within which Aspen is located and within which diversions will be made for uses on the eastern slope, is within the Colorado River Water Conservation District. The board of directors of that district considered this project and the operating principles which I have discussed and by its unanimous vote, including the vote of the director from Pitkin County, approved the project. For the record I hand you a copy of the action of that district's board of directors.

One other area in Colorado which is concerned is the Southwestern Water Conservation District which is an official quasi-municipal agency representing the area immediately south of that included within the area represented by the Colorado River Water Conservation District. The board of directors of the Southwestern Water Conservation District also considered this project and the operating principles and its board of directors unanimously gave its approval to the project. For the record I submit a copy of the resolution adopted by that district's board of directors.

REPAYMENT ENTITY

The plan for the Fryingpan-Arkansas project contemplates the organization of a water conservancy district which will contract with the Government for the repayment to it of those reimbursable costs allocated to irrigation and perhaps, to some extent, to domestic and industrial uses. This committee and the Congress are familiar with the districts organized under the Colorado Water Conservancy Act. Some 6 or 7 water conservancy districts have been organized in Colorado. In connection with the Colorado-Big Thompson project, the Conejos unit of the San Luis Valley project, the Paonia, and the Mancos projects a water-conservancy district is the entity which is responsible for the payment to the United States of reimbursable costs. It would seem that under the circumstances a specific description of the powers, duties, and liabilities of such a district are unnecessary.

ARKANSAS RIVER COMPACT

One other phase of this matter should be mentioned. In 1948 the States of Colorado and Kansas signed a compact relating to the use of Arkansas River water in those States. That compact was later ratified by the State legislatures and is now effective. Article IV (D) of that compact provides as follows:

"D. This compact is not intended to impede or prevent future beneficial development of the Arkansas River Basin in Colorado and Kansas by Federal or State agencies, by private enterprise, or by combinations thereof, which may involve construction of dams, reservoirs, and other works for the purposes of water utilization and control, as well as the improved or prolonged functioning of existing works: *Provided*, That the waters of the Arkansas River, as defined in

article III, shall not be materially depleted in usable quantity or availability for use to the water users in Colorado and Kansas under this compact by such future development or construction."

It would seem clear that the proposed project is well within the requirements of the above-quoted section of the Arkansas River compact. Indeed, there seems little doubt that downstream water users will welcome Colorado River water into the Arkansas River Basin.

AUTHORIZATION LEGISLATION

There are one or two provisions of the bill now before you which should be mentioned. Section 2 authorizes the Secretary of the Interior to appoint two representatives of the United States to the Commission which is required by the operating principles. This is necessary because there is no existing Federal law under which such representatives may be appointed. The creation of the Commission is very wise. The bill should contain the necessary provisions to implement the operating principles.

Your attention is also directed to the fact that section 3 of the bill repeats the protection for western Colorado contained in the operating principles so far as the rights of western Colorado under Senate document 80 are concerned.

One other provision of the operating principles is also recognized in the bill. You will recall that the operating principles require a preference for the use of water for domestic purposes. In order to eliminate any possible inconsistency with Federal reclamation laws the bill provides for the preference for domestic use.

I submit to the committee that the Fryingpan-Arkansas project is a desirable project which has long been needed. It will utilize water which is well within Colorado's share of Colorado River Basin water. Most careful study and consideration have been given to the protection of the Basin within which the water arises and from which it will be diverted. After many years of study all of the official Colorado agencies charged with the responsible action on matters such as this have given their approval to the project.

Mr. HARRISON. The committee will stand adjourned until 9:30 tomorrow morning.

(Whereupon, at 12 noon the subcommittee adjourned to reconvene at 9:30 a. m. Tuesday, June 9, 1953.)

FRYINGPAN-ARKANSAS PROJECT, COLORADO

TUESDAY, JUNE 9, 1953

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Washington, D. C.

The subcommittee met, pursuant to recess, at 9:35 a. m. in the committee room, New House Office Building, William H. Harrison presiding.

Mr. HARRISON. The committee will come to order.

Mr. Chenoweth, who is the first witness this morning?

Mr. CHENOWETH. Mr. Breitenstein will continue, Mr. Chairman.

Mr. HARRISON. Mr. Breitenstein, will you proceed.

STATEMENT OF JEAN S. BREITENSTEIN, ATTORNEY FOR THE COLORADO WATER CONSERVATION BOARD, DENVER, COLO.—Resumed.

Mr. BREITENSTEIN. Yesterday at the time of the adjournment, I had concluded a brief review of the operating principles that had been agreed upon for this project. At this time I have a certified copy of those operating principles as approved by the Colorado Water Conservation Board, and, if I may, I would like to submit that copy for the record.

(The document referred to is as follows:)

EXTRACT FROM MINUTES OF MEETING OF FEBRUARY 22, 1951
COLORADO WATER CONSERVATION BOARD

The operating principles for the first phase, Gunnison-Arkansas project (Fryingpan-Arkansas project), the recommendations for the change in the name of the project (article III below), and the "effects of the approval of the project report" (article IV below), as amended and approved by the action of the Colorado Water Conservation Board on this 22d day of February, 1951, are as follows:

"The construction and operation of the project involve the diversion of water from the headwaters of the Fryingpan River and other tributaries of the Roaring Fork River to the Arkansas River Basin. The project contemplates:

"(*a*) The maximum conservation and the use of the diverted waters;

"(*b*) The protection of western Colorado water uses, both existing and potential, in accordance with the declared policy of the State of Colorado; and

"(*c*) The preservation of recreational values.

"In order to accomplish such purposes the project shall be operated by the United States in compliance with the Federal reclamation laws, the laws of the State of Colorado relating to the appropriation, use, or distribution of water, and the following operating principles:

"1. As used herein,

"(*a*) 'Project' means that certain enterprise planned and designed by the Bureau of Reclamation, Department of the Interior, for the transmountain diversion of water from the headwaters of the Fryingpan River and other tributaries of the

Roaring Fork River to the basin of the Arkansas River, together with all of its appurtenant works and facilities in both eastern and western Colorado.

"(*b*) 'Eastern Colorado' means that portion of the State of Colorado lying within the natural drainage basin of the Arkansas River.

"(*c*) 'Western Colorado' means that portion of the State of Colorado lying within the natural drainage basin of the Colorado River and served by diversions made from the Colorado River, or its tributaries, above its confluence with the Gunnison River.

"(*d*) 'Eastern Colorado Conservancy District' means that entity to be hereafter created to contract for payment to the United States of an appropriate portion of project costs allocated to certain water uses in eastern Colorado.

"(*e*) 'Aspen Reservoir' means not only the reservoir presently planned for construction near the town of Aspen as part of the project but also, unless the context requires otherwise, any other reservoir that may be constructed in western Colorado above the town of Aspen in lieu of that reservoir for the purpose of protecting water uses in western Colorado.

"(*f*) 'C. f. s.' means cubic feet of water per second of time.

"2. The Aspen Reservoir shall be constructed and maintained on the Roaring Fork River above the town of Aspen, Colo., with an active capacity of about 28,000 acre-feet and with a reasonable expectancy that it will fill annually. The 28,000 acre-feet of water stored therein shall be available for replacement purposes in western Colorado. All of such stored water shall be released under the conditions and limitations hereinafter set forth.

"3. The cost of construction and perpetual operation and maintenance of the Aspen Reservoir shall be a charge against the project and shall be paid from project revenues or as otherwise provided by the Congress of the United States.

"4. The Aspen Reservoir shall be completed before any water is diverted to eastern Colorado by means of the project.

"5. The primary purpose of Aspen Reservoir is to furnish, in like manner as if the project were constructed by a water conservancy district organized pursuant to the laws of the State of Colorado, the water required for the protection of western Colorado water users by the provisions of section 1, chapter 192, Colorado Session Laws, 1943, reading as follows: '*Provided, however*, That any works or facilities planned and designed for the exportation of water from the natural basin of the Colorado River and its tributaries in Colorado, by any district created under this chapter, shall be subject to the provisions of the Colorado River compact and the Boulder Canyon Project Act, as amended; that any such works or facilities shall be designed, constructed, and operated in such a manner that the present appropriations of water, and in addition thereto prospective uses of water for irrigation and other beneficial consumptive-use purposes, including consumptive uses for domestic, mining, and industrial purposes, within the natural basin of the Colorado River in the State of Colorado, from which water is exported, will not be impaired nor increased in cost at the expense of the water users within the said natural basin; and that the facilities and other means for the accomplishment of said purpose shall be incorporated in, and made a part of, any project plans for the exportation of water from said natural basin in Colorado.'

"6. The replacement capacity of the Aspen Reservoir is that portion of the total reservoir capacity required to protect existing rights to the use of water in western Colorado for domestic, irrigation, and manufacturing purposes (including power generation) and hereafter acquired rights to use of water in western Colorado for domestic, irrigation, and manufacturing purposes (excluding power generation) against any and all losses of needed water because of stream depletions resulting from project operations. In the determination of such replacement capacity, consideration shall be given to, but not necessarily limited to, needs for water for the following purposes, such needs, however, not to be for quantities in excess of those quantities of water which would have been available from the Roaring Fork River to supply such needs if the project had not been constructed:

"(*a*) To supply existing rights below Aspen Reservoir;

"(b) To irrigate new land and provide for supplemental irrigation in western Colorado;

"(*c*) To satisfy the obligation of the Roaring Fork River to contribute its proportional share of the required winter flows at a point immediately below the confluence of the Roaring Fork River and the Colorado River; and

"(*d*) To satisfy the obligation of the Roaring Fork River to contribute its proportional share of a demand of at least 300,000 acre-feet of water annually in the Colorado River below its confluence with the Roaring Fork River, for domestic

and manufacturing uses. Said demand for use in western Colorado is to be met at the times and in the amounts required.

"Water stored in the replacement capacity of the Aspen Reservoir shall be released by the United States, upon the request of the State administrative agency having responsible charge of the distribution of the water of the stream or streams affected, whenever the needs in the Colorado River Basin in western Colorado below the project diversion points for the uses covered by this paragraph 6 exceed the available supply of water; provided that the rate of release of such stored water shall be reasonable and proper with due regard for the needs in western Colorado for replacement water and with due regard, also, for the obligation of the project to supply such water.

"No charge shall ever be imposed for water release from, or made available by reason of releases from, the replacement capacity of the Aspen Reservoir.

"7. That portion of the total capacity of the Aspen Reservoir not needed as replacement capacity constitutes surplus capacity. Water stored in such surplus capacity may be sold or leased by the United States to water users in western Colorado. Charges for the use of such water shall be comparable to charges for use of project water for similar purposes in eastern Colorado with appropriate adjustment for the repayment ability of such water users. If it hereafter appears that the cost of procuring water, from sources other than the surplus capacity of the Aspen Reservoir, for the same uses as those to which water from the surplus capacity of the reservoir is to be made available shall have been increased by reason of the construction and operation of the project, then the charges for water released from the surplus capacity shall be diminished by the amount of such increase in cost.

"8. Project diversions from Lime Creek shall be made only in the months of May and June of each year.

"9. To protect recreational values, including fishing, no diversions from western Colorado will be made which reduce the remaining aggregate stream flows to less than either of the following minimum standards:

"(*a*) The Fryingpan collection system at the points of diversion collectively, exclusive of Lime Creek—15 c. f. s. October 1 through March 31; 30 c. f. s. April 1 through September 30;

"(*b*) Near Norrie (immediately below the junction of North Fork and Fryingpan River)—30 c. f. s. October 1 through March 31; 100 c. f. s. April 1 through April 30; 150 c. f. s. May 1 through May 31; 200 c. f. s. June 1 through June 30; 100 c. f. s. July 1 through July 31; 75 c. f. s. August 1 through August 31; 65 c. f. s. September 1 through September 30.

"In maintaining the above minimum standards, the project diversions shall be regulated, so far as is practicable, in such a manner that the North Fork, the Fryingpan River, and each of the tributaries of those streams, shall contribute to the residual stream flows required by those minimum standards quantities of water in proportion to their natural contributions.

"10. An appropriate written contract shall be made whereby the Twin Lakes Reservoir & Canal Co. shall refrain from diverting water whenever the natural flow of the Roaring Fork River and its tributaries shall be only sufficient to maintain a flow equal to or less than that required to maintain the recommended average flows in the Roaring Fork River at the head of the proposed Aspen Reservoir in a quantity proportionate to the respective natural contributions of those streams from which diversions are made to the natural flow of the Roaring Fork River. The recommended average flows above mentioned are flows in quantities equal to those recommended as a minimum at the head of the Aspen Reservoir according to the following schedule submitted by the United States Fish and Wildlife Service and the Colorado Game and Fish Commission:

"Month	Average second-feet	Acre-feet (1,000)	"Month	Average second-feet	Acre-feet (1,000)
October	44	2.7	May	100	6.2
November	35	2.1	June	120	7.1
December	29	1.8	July	100	6.2
January	26	1.6	August	63	3.9
February	25	1.4	September	44	2.6
March	24	1.5			
April	64	3.8	Total		40.9

"In maintaining the above averages, at no time shall the flow be reduced below 15 cubic feet per second during the months of August to April, inclusive, or below 60 cubic feet per second during the months of May to July, inclusive, providing the natural flow during said period is not less than these amounts. The obligation to supply the minimum stream flow as set forth in the above table on the Roaring Fork River shall, to the extent of 3,000 acre-feet annually, be a project obligation to be supplied from any waters diverted from the south tributaries of Hunter Creek, Lime Creek, Last Chance Creek, or any of them.

"The Twin Lakes Reservoir & Canal Co. shall not be required to refrain from diverting water under its existing decrees from the Roaring Fork River except to the extent that a like quantity of replacement water is furnished to said company without charge therefor through and by means of project diversions.

"If by reason of storage capacity in the Aspen Reservoir, the Twin Lakes Reservoir & Canal Co. derives additional water or other benefits or advantages it would not have realized had this project not been constructed, then nothing herein contained shall prevent the project from making appropriate charges for such water or other benefits or advantages.

"11. All lands acquired for project construction and operation and water surfaces of project reservoirs well be open to the public for recreational purposes, excepting those areas reserved by the operating agency.

"12. The project will be operated in such a manner that those in eastern Colorado using project water imported from the Colorado River Basin for domestic purposes shall have preference over those claiming or using water for any other purpose.

"13. The project is to be operated in such a manner as to secure the greatest benefit from the use and reuse of imported project waters within the project boundaries in the State of Colorado.

"14. Any and all benefits and rights of western Colorado water users in and to water stored in Green Mountain Reservoir, as described and defined in Senate Document 80, 75th Congress, 1st session, shall not be impaired or diminished by this project.

"15. The project, its operation, maintenance, and use shall be subject to the provisions of the upper Colorado River Basin compact of October 11, 1948 (Public Law 37, 81st Cong., 1st sess.), the Colorado River compact of November 24, 1922 (H. Doc. 605, 67th Cong., 4th sess.), and the Boulder Canyon Project Act of December 21, 1928 (45 Stat. 1057–1064). In the event any curtailment of use of Colorado River water in the State of Colorado is necessary to satisfy the provisions of the Colorado River compact or the upper Colorado River Basin compact, then the diversions by the project for use in eastern Colorado shall be curtailed before there is any curtailment of the right to store water in Aspen Reservoir in quantity not in excess of the capacity of that reservoir for use in western Colorado in accordance with these operating principles.

"16. The Secretary of the Interior shall at any time have the option to obtain or require the transfer to the United States of any and all rights initiated or acquired by the appropriation or use of water through the works of the project in eastern Colorado, except vested rights to present appropriations: *Provided, however*, That, the title so taken shall be subject to a beneficial use of such water as may be provided in the payment contract or contracts. The rights to store water in Aspen Reservoir under the applicable laws of the State of Colorado shall be initiated and acquired by and held in the name of the United States pursuant to those laws.

"17. To assure project operation in conformity with the operating principles heretofore stated, to provide a means for the collection and interchange of information, and to provide a method for the continued study of project operations to the end that, if the stated operating principles may be improved upon, recommendations for changes may be made to the contracting parties, a commission shall be created in an appropriate manner to be composed of one representative of the Eastern Colorado Conservancy District, one representative of the Colorado River Water Conservation District, two representatives of the United States, and one representative of the State of Colorado appointed by the Colorado Water Conservation Board after consultation with the Colorado Game and Fish Commission. The powers of such commission shall be limited to the collection of data, the making of findings of fact, and the suggestion of changes in operating principles."

ARTICLE III

NAME OF PROJECT

"It is recommended that this project shall hereafter be referred to as the Fryingpan-Arkansas project. Approval of this provision by eastern Colorado representatives shall not be implied as an abandonment of their expressed intention to obtain approval of a project from the Gunnison River nor shall approval of this provision by western Colorado representatives be construed as any consent on their part to the authorization of a project for the exportation of water from the Gunnison River to eastern Colorado."

ARTICLE IV

EFFECT OF APPROVAL OF PROJECT REPORT

"The committee recognizes that the approval of this report is not to serve as a precedent or example for the approval of any other transmountain diversion of major proportions not heretofore authorized.

"The policy of the State of Colorado, as initiated in statewide meetings held under the auspices of the state planning commission at Denver and Grand Junction, and as evidenced by resolutions dated June 15, 1935, and February 28, 1936, was not adhered to because surveys of the character mentioned in said resolutions were not available to the committee. Nothing herein contained shall be deemed or construed as a precedent for Federal projects not heretofore authorized until adequate surveys have been made and the necessary data are available so that a general allocation or apportionment of the waters of the Colorado River, allocated for consumptive use in the State of Colorado, under the Upper Colorado River Basin compact, may be made, between eastern Colorado and western Colorado, as distinguished from an attempt to execute such state policy by a piecemeal or series of partial allocations, any of which may seriously interfere with a complete, overall State program.

"In conformity with the foregoing, no further federally financed transmountain diversions of water from the natural Colorado River Basin shall be approved by the Colorado Water Conservation Board for authorization until the surveys hereinabove described are completed and the need for the use of water in western Colorado has been determined."

I hereby certify this is a true and exact copy of a minute from the minutes of the meeting of the Colorado Water Conservation Board held February 22, 1951.

IVAN C. CRAWFORD, *Director.*

Mr. BREITENSTEIN. Yesterday Congressman Aspinall inquired as to whether or not the policy and review committee held any meetings on the western slope of Colorado. I have with me this morning the minutes of the policy and review committee. They show that the second meeting of that Committee was held in Grand Junction, Colo., on January 6, 1949.

Mr. ASPINALL. My question, Mr. Breitenstein, was directed toward the Roaring Fork area and not Grand Junction, but I am glad to have this in the record.

Mr. BREITENSTEIN. There was that meeting, and there was a rather large attendance from the area.

The minutes further show that a representative from the Aspen area, Mr. Woodall, was present at a meeting of the committee held in Denver, Colo., in May of 1949. I am told that he requested that a meeting be held in Glenwood Springs. The minutes reflect that the committee ordered that the next meeting was to be held in Glenwood Springs on July 27 at the request of Mr. Woodall, of Aspen, and it was held in Glenwood Springs. That is on the confluence of the Roaring Fork and the Colorado. It was held on July 27, 1949.

Mr. ASPINALL. About how far is that from Aspen.

Mr. BREITENSTEIN. Thirty-five or forty miles.

Mr. ASPINALL. Have you finished with that meeting?

Mr. BREITENSTEIN. I was going to point out that the minutes will show that no one from the local area except Mr. Heuschel from Carbondale attended the meeting.

Mr. ASPINALL. As I understood by statements that have been made to me that was a meeting that only the county commissioners were supposed to attend. That is the reason I asked if your record shows that.

Mr. BREITENSTEIN. Congressman, I have talked with two members of the Policy and Review Committee and they tell me that the Glenwood meeting was held at the express request of Mr. Woodall, of Aspen, and that the water users of the area were invited to it, but for some reason they did not attend.

There is one other matter which I think is of interest because of the Aspen area and its recreational value.

I pointed out yesterday that certain provisions of the operating principles were designed to protect recreational values.

At the meeting held in Denver on January 3 and 4, 1950, Mr. J. W. Penfold, who is the western representative of the Izaak Walton League of America submitted a statement from which I would like to quote two paragraphs. I am quoting now from Mr. Penfold.

> It should be said right here that this committee—that is the Policy and Review Committee—which is unique in reclamation history and the consideration being given by it to the related values of the Gunnison-Arkansas project constitutes a long step in the right direction of which Colorado can well be proud.
>
> This initial phase of the Gunnison-Arkansas project is a case in point illustrative of the billions of dollars worth of river basin projects planned, and illustrative of the opportunities we have if only our planners and the public generally are sufficiently long-headed to see them and to grasp them firmly.

Of course, as I said yesterday, provision is made for minimum stream flows on the Fryingpan and the Roaring Fork to protect the recreational values.

After these operating principles were agreed on, they were submitted first for review by the Bureau of Reclamation. The Washington office of the Bureau critized them in some respects and required a revision. The committee met again with officials of the Bureau of Reclamation and finally agreed on the operating principles which appear in Senate Document 106.

After they were agreed upon by the committee, they were presented to a meeting of the Colorado Water Conservation Board, which was late in January or early February of 1951. At that meeting they were discussed. The representatives of the western slope said that before they voted upon them and gave their final approval to the Fryingpan-Arkansas project, they wished to return to their communities and discuss the matter with their local people. Accordingly, arrangements were made to have the meeting continued for three to four weeks.

When the water conservation board met again, Judge Dan Hughes from Montrose presented a resolution of the Colorado Water Conservation Board of Directors approving the operating principles and the Fryingpan-Arkansas project, with only one condition and that was that no further federally financed transmountain diversion projects be approved by the board until a survey was completed of

the existing and potential uses of water on the western slope of Colorado.

Mr. ASPINALL. Mr. Breitenstein, that was a kind of compromise suggestion that had arisen, that they would take the Fryingpan-Arkansas at that time, or as early in the future as possible, providing there would not be any other efforts made to secure other waters from western Colorado. Is that what it was?

Mr. BREITENSTEIN. I would not say it was a compromise suggestion, Mr. Aspinall, because that matter had been discussed in meetings of the Policy and Review Committee and in meetings of the Drafting Committee, and agreement had been reached substantially in the same language as that suggested by Judge Hughes. The only action of the Colorado River Water Conservation District board of directors that was pertinent was to insist that this be made a part of the action on the Fryingpan-Arkansas project and the operating principles.

I might explain for the record that the Colorado River Conservation District is a quasi-official municipal agency of the State of Colorado. It is composed of the western Colorado counties along the main stem of the Colorado River, the Roaring Fork and the Gunnison Rivers, except for the county of Grand. Pitkin County, in which the town of Aspen is located, has a member of the board of directors. And, as I say, this resolution of that board of directors was adopted unanimously.

Mr. HOSMER. Would you state again the conditional part of that resolution?

Mr. BREITENSTEIN. That the board should not approve any other Federally financed projects for the transmountain diversion of Colorado River water until studies and investigations of existing and potential water uses on the western slope of Colorado be completed.

Mr. HOSMER. That no other Federal?

Mr. BREITENSTEIN. No other, yes, sir.

Mr. HOSMER. You mean other than this?

Mr. BREITENSTEIN. Other than the Fryingpan-Arkansas. That was the sense of that resolution.

Mr. HOSMER. Did they approve this Fryingpan project?

Mr. BREITENSTEIN. Yes, sir; yes, sir.

Mr. HOSMER. But this water conservation district board that made the resolution covers areas other than the western slope?

Mr. BREITENSTEIN. No, sir. The Colorado River Water Conservation District is entirely on the western slope. It includes all Colorado counties along the main stem of the Colorado River and the Roaring Fork River and the Gunnison River, except the county of Grand.

Mr. HOSMER. Is that where Aspen is located?

Mr. BREITENSTEIN. Aspen is located in Pitkin County. Pitkin County has a member on the board of directors of that district.

Mr. HOSMER. Thank you.

Mr. BREITENSTEIN. Also, at this meeting of the Colorado Conservation Board, the Southwestern Colorado Water Conservation District, which is an entity similar to the Colorado Water Conservation District but includes the counties in southwestern Colorado within the San Juan and, I believe, the Dolores River drainages, presented a similar resolution which had been unanimously adopted by its board of directors.

In the excerpt from the minutes of the February 22, 1951, meeting of the Colorado Water Conservation Board which I submitted yesterday are copies of these resolutions of the Colorado River Conservation District and the Southwestern Colorado Water Conservation District.

After those resolutions had been presented, the Colorado Water Conservation Board, on which there are four members from the western slope of Colorado, unanimously approved this project—the Fryingpan-Arkansas project—and the operating principles.

Mr. HOSMER. Mr. Breitenstein, has there been any further actions by these people since the time that cost estimate has gone up from $147 million to $172 million?

Mr. BREITENSTEIN. There has been no further action by any official agency of the State of Colorado charged with the responsibility in these matters which in any way changes the matters which I have reported on already.

Mr. HOSMER. Has there been any reconsideration of this since the 1953 cost estimates?

Mr. BREITENSTEIN. There has been no reconsideration of this project. However, there is another matter to which I should direct attention.

The upper Colorado River Basin States are interested in the Colorado River storage project, with which no doubt many members of the committee are familiar. When the matter of the approval of a bill for the authorization of that project was before the Upper Colorado River Commission, the city of Denver appeared and requested that a plan of its for the diversion of some 177,000 acre-feet of Blue River water to the Denver area for municipal purposes be included within the bill. The result of that was that the Denver proposal was submitted to the Colorado Water Conservation Board at a meeting held, as I recall, in February of this year. At that time the board gave much consideration to the question of transmountain diversions and adopted a resolution setting up what is known as the Colorado Conference Committee to reconsider the request of Denver for this Blue River water.

At that meeting there was no action taken, or at any meeting of the Colorado Water Conservation Board since then, which in any way affects the actions of that board on this project—the Fryingpan-Arkansas project. That project stands in the same condition as it was.

However, this conference committee has been created, the legislature has appropriated $100,000 to the water conservation board to finance its work, and is now engaged in an extensive study of existing and potential uses on the western slope of Colorado. However its work and its studies are not directed toward the Fryingpan-Arkansas project or any phase of it. The work is directed to other projects, and the work is now underway, and it is hoped that the work will be completed and the study will be completed sometime in 1953.

Mr. ASPINALL. Mr. Chairman. Mr. Breitenstein, you are not telling this committee that the committee to which you refer is not going to take into consideration when it makes its final determination what water is present in the Roaring Fork area and the needs and so forth?

Mr. BREITENSTEIN. Oh, no, I did not mean to intimate that at all.

Mr. ASPINALL. They would not do any work as far as this commission is concerned upon the Roaring Fork area because it has already supposedly been done.

Mr. BREITENSTEIN. Yes.

Mr. ASPINALL. All they have to do is to evaluate what has been done up there?

Mr. BREITENSTEIN. That is correct, Congressman. I absolutely agree with that. The point I was trying to make was that the actions on the Fryingpan-Arkansas by the water conservation board and the two western Colorado districts stand unchanged, and that the work of the conference committee does not affect the approval of the Fryingpan-Arkansas project. But, of course, it will be taken into consideration by that committee.

Mr. ASPINALL. Now let me ask you another question. Are you advising the committee that the reason the Colorado Water Conservation Board did not act favorably or unfavorably upon Denver's request was because of the fact that we had this agreement that there would be no further diversions requested that called for the expenditure of public funds until a survey was had? You are not telling us that the decision that was made or was not made was dependent upon that provision in the operating agreement?

Mr. BREITENSTEIN. No, I did not intend to intimate that at all either.

Mr. ENGLE. May I ask a question, Mr. Chairman?

Mr. HARRISON. Mr. Engle.

Mr. ENGLE. Mr. Breitenstein, is this committee being asked to referee a local row in Colorado about the disposition of their water resources out there?

Mr. BREITENSTEIN. No, sir. I am trying to point out that we have resolved this controversy within the State so far as this project is concerned. I am trying to point that out.

Mr. ENGLE. That is the way I read your testimony.

Mr. BREITENSTEIN. Yes.

Mr. ENGLE. Now just for the guidance of those who are considering this legislation, Mr. Aspinall and all the others, I think this committee is probably interested, at least from my standpoint, I want to know something about the need of the project, I want to know something about the engineering, I want to know something about finances, and I want to know something in this instance about the relationship of this project to the whole development.

Outside of that, if the people in Colorado have a row among themselves, they had better go back home and settle it, because as far as I am concerned I do not propose to sit up there and tell the people in Colorado how they ought to use the water. They can put it on their land or mix it with their whiskey. I have told them that many times. And if there is an argument in Colorado about water, where it should go, that argument should be settled in Colorado.

From my own point of view, unless there is a rank sort of injustice being done, I do not think this committee should undertake to go beyond the official position of the State agencies, whatever that may be.

Mr. DAWSON. Will you yield to me?

Mr. ENGLE. Yes.

Mr. DAWSON. I have the same question in mind, but as I interpret what has been done in Colorado, it is this: They are cognizant of their problem out there, and they wanted to get together and see if they could not work it out in their own State, and that is the very reason

that they set up this water conservation board out there to resolve their differences.

Mr. ENGLE. I understand that.

Mr. DAWSON. Now they have come out with an official report, as I understand it, approving this project. Is that correct?

Mr. BREITENSTEIN. That is correct, yes, sir.

Mr. ENGLE. What I am saying, Mr. Dawson, is this: That internally this committee can hardly be a court of appeal from argument as to whether X acre-feet of water is put upon this piece of land or upon that piece of land. And if we get ourselves into that position, we will be refereeing these local arguments from now until doomsday. We have to assume that the local people have some sense, and that local government is good, and that local responsibility in government is a sound principle of government. And when the appropriate State and local agencies have made up their minds as to the disposition of the water resources of the State, so far as we are concerned, that ought to close the gates except in the event of a flagrant abuse of some sort of local discretion.

I can see how some particular area may think they are pretty well getting the business from, say, Denver, which has too much control and too much power, as against the western slope boys, or something, but that is a question of internal politics in Colorado. That is hardly the business of this committee. And in the absence of a pretty flagrant case of highway robbery someplace, I just do not think that this committee should interpose itself for the purpose of determining the problems that should be determined at the State level.

Mr. DAWSON. Will you yield to me again?

Mr. ENGLE. Yes.

Mr. DAWSON. The gentleman from the State of Colorado can correct me if I am wrong on this, but as I understand, this water conservation board as it is presently composed consists of members from various sections of your State out there.

Mr. ASPINALL. That is right.

Mr. DAWSON. And four members on that board are on the western slope, your section of the country. And as I understand it———

Mr. ASPINALL. Do not forget, Mr. Dawson, I represent eastern Colorado as well as western Colorado.

Mr. DAWSON. My only point was that the board, as I understand it, represents a fair cross section of the State of Colorado to resolve this problem. It is my understanding that their decision was unanimous in approving this project.

Mr. ASPINALL. I think it should be said that your statement is correct and that the Colorado Water Conservation Board is composed of membership chosen as equitably as humanly possible over the State. I think we will have to admit that.

The only thing I wish to advise the committee is that there will be some opposition witnesses. Whether or not my questioning has gone too far I do not know. But there will be some opposition witnesses before this hearing is over to show that there are areas, or at least to allege that there are areas, that have not been properly considered in the disposition of the decision that was made. I think that this committee should hear them.

Mr. DAWSON. I agree with that. My only point was this: In answer to the question from the gentleman from California that we

are not here to arbitrate quarrels, I think the position of the State of Colorado has been settled and stated through their designated officials out there. They have gotten together, the water conservation board, and they have unanimously approved this project.

Mr. ASPINALL. All I can say to that is that this committee in authorizing the expenditure of public funds must make certain determinations in these matters. Now whether you go as far as our colleague from California has suggested we should not go, I do not know. But I do think it is only right we should prepare the case so that the opposition can be heard and understood.

Mr. DAWSON. I think so.

Mr. ASPINALL. That is all I have in mind.

Mr. ENGLE. But——

Mr. SAYLOR. Mr. Chairman, I would like to be heard on this.

Mr. ENGLE. I believe I still have the floor, Mr. Chairman. I will yield to you in just a moment.

What I was trying to do was be of some assistance in the presentation of this matter. We can go on here—we are in the middle now of the second day, getting well started, and we only have 3 days, I understand, and about 21 witnesses out here. I do not know what they want to talk about, but I have seen a lot of cases come before this committee, and I have seen the time taken up in squabbling about detail that in the final analysis cannot affect the decisions of this committee anyway.

The committee wants to know, first, the necessity for this project. We have got to know something about the engineering, something about the economics, and certainly with reference to this project, something about its relationship to the Colorado River government. If we are going to take all of the time to argue about who was at what meeting inside of Colorado itself, we are simply not going to get the job done we ought to.

Unless I can be sure, as far as I am personally concerned, that there was some gross abuse of representative government out there in Colorado, the decisions made by the official water agencies of that State with respect to the disposition of their water resources will be considered as binding. And they will have to defeat their governor and elect themselves a different water commissioner if they do not like it. But as far as this committee is concerned, it seems to me we should not go inside and argue this point in the absence of a plain abuse of some sort that is flagrant enough to attract the attention of a Congressional committee and warrants the overruling of the established water agencies of the State. And that goes a long way.

And for the benefit of those who want to argue on the other side when they come here, the first thing I want them to prove to me is that they have really been given the business. And if they cannot do that, they have not established a basis upon which to go any further.

Now I am all through and I will not say any more.

Mr. HARRISON. I now recognize the gentleman from Pennsylvania.

Mr. SAYLOR. I would like to say that I, in principle, agree with the gentleman from California. I think that is none of this committee's business to interfere with the State matters. But the thing that has worried me, as I took Mr. Breitenstein's statement to my office and went over it, is that I have yet to see where this Colorado Conservation Board has approved this project as it now stands. They approved

it as it appears in Senate Document 106, but that is not the same project that we have before us right now. And we have a witness who stood here and took up half of yesterday's time explaining the difference between Senate Document 106 and the project. Now I would like to know whether or not the Colorado Water Conservation Board, Mr. Breitenstein, has ever approved this project as it is now being presented to us.

Mr. BREITENSTEIN. It has approved the project as now being presented except that at the time it was before the Colorado Water Conservation Board, the estimated construction cost was lower than it is now. The only change in the project since its approval by the Board is the increase in construction costs.

Mr. ENGLE. Physically, it is the same project?

Mr. BREITENSTEIN. Yes, sir.

Mr. SAYLOR. Then you disagree with the witness yesterday that told of all the things that are on that map in Senate Document 106 that are not on the map which he testified from, and explained the differences in that and the project as shown in Senate Document 106.

Mr. BREITENSTEIN. I believe you must have misunderstood that, Congressman, because he was talking about the Fryingpan-Arkansas project. He was not talking about the big Gunnison-Arkansas project. The board has never approved the big Gunnison-Arkansas project. It has approved the Fryingpan-Arkansas project, and that is physically the same project today as it was when it was approved by the board, except for the increase in construction costs.

Mr. SAYLOR. And in your opinion, the increase in construction costs would not affect the feasibility of this project in any way?

Mr. BREITENSTEIN. I am not qualified to answer that question, sir?

Mr. SAYLOR. You are the attorney for this board here as a witness?

Mr. BREITENSTEIN. Yes, sir.

Mr. SAYLOR. And there has been a material increase in costs?

Mr. BREITENSTEIN. Yes, sir.

Mr. SAYLOR. Now I want to know whether that material increase is such that it would affect the feasibility of this project.

Mr. BREITENSTEIN. Engineers upon whom I must rely in such matters tell me that the project is economically feasible with the increased costs. Those engineers will be here and testify. The unit rates which are now contained in the pay-out schedule, I understand, are different and higher than those that you read to Mr. Christy yesterday. But I assure you that I am not qualified to go into that. I am neither an accountant nor an engineer.

Mr. HOSMER. Will the gentleman yield?

Mr. SAYLOR. Yes.

Mr. HOSMER. Did you not state in answer to my question that the board had not set down and gone through this thing in the light of these new figures?

Mr. BREITENSTEIN. It has not considered the increased construction costs. That is correct.

Mr. HOSMER. In other words, it has not made another decision on this change, at least, in the cost of the project?

Mr. BREITENSTEIN. No, sir; it has not.

Mr. HOSMER. It has not been reviewed on that basis?

Mr. BREITENSTEIN. It has not been reviewed on that basis; no, sir. I will hurry on in view of what has been said.

So far as the repayment entity to repay the costs allocated to water uses is concerned, the plan contemplates the organization of a conservancy district under Colorado law the same as the Colorado-Big Thompson.

One other matter should be mentioned. This project involves the Arkansas River Basin in Colorado. There is a compact between the States of Colorado and Kansas relative to the Arkansas River. I have with me an excerpt from the minutes of the July 24, 1951, meeting of the Arkansas River Compact Administration approving this project, and I would like to submit it for the record.

Mr. HARRISON. Without objection, they will be received.

(The document is as follows:)

EXTRACT FROM MINUTES OF JULY 24, 1951, MEETING OF THE ARKANSAS RIVER COMPACT ADMINISTRATION

Gunnison-Arkansas Project, Roaring Fork Diversion (Arkansas-Fryingpan)

It was moved by Representative Tate and seconded by Representative Nevius that the administration approve and adopt the report of the special committee and incorporate the committee's report in a resolution submitted by the legislative and legal committee as follows:

"Whereas the Arkansas River Compact Administration, an official interstate body created by the Arkansas River compact and charged with the administration of such compact, is interested in the proposed development to the extent that its construction and operation shall not interfere with the rights, interests, and obligations of Colorado and Kansas under the compact: Now, be it

"*Resolved by the Arkansas River Compact Administration*, That the following comments and recommendations relating to said report of the Secretary of Interior, to wit:

"The Arkansas River Compact Administration submits these comments and recommendations to the Governors of Colorado and Kansas respecting the proposed initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado, namely:

"1. The administration understands that the project plan proposes:

"(*a*) The importation by appropriate project works of approximately 70,000 acre-feet of water a year from the Colorado River Basin to the Arkansas River Basin for supplemental irrigation and domestic water supplies in Colorado and for the production of hydroelectric energy.

"(*b*) In connection with such importation of water and its regulation in the Arkansas River Valley by project works, the reregulation of native waters of the Arkansas River. (The term 'native waters,' as herein used, being those waters covered and defined by art. III–B of the Arkansas River compact.)

"2. The interstate water relations of Colorado and Kansas with respect to the Arkansas River do not justify any objection to the proposed project development for the importation of Colorado River water (described in subparagraph (*a*) above).

"3. The reregulation of native waters of the Arkansas River (native waters being as above mentioned) concerns the Arkansas River Compact Administration and both Colorado and Kansas in complying with the provisions of the Arkansas River compact and maintaining the benefits and obligations of the two States under the compact. To that end, it is recommended to the Governors of Colorado and Kansas, and expressed as a policy of the Arkansas River Compact Administration, that the initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado, as set forth in Project Planning Report No. 7–8a, 49–1 of the Bureau of Reclamation, be approved: *Provided, however*, That there shall be no reregulation of native waters of the Arkansas River as proposed in such report until a plan of operation, rules, regulations, procedures, and agreements in furtherance thereof, including any pertinent agreements between the Corps of Engineers and the Bureau of Reclamation, shall have been submitted to, and approved by, the Arkansas River Compact Administration and the affected water users.

"4. It is the purpose and intent of these recommendations that the proposed project development shall not interfere with or defeat the rights, interests, and obligations of Colorado and Kansas under the Arkansas River compact.

be transmitted to the Governors of the State of Colorado and Kansas and such Governors be and are hereby requested to submit the same to the Secretary of Interior with their official State comments and recommendations upon said proposed project and development."

On vote being taken, the motion carried and was declared adopted.

The above extract was taken from the set of minutes of the Arkansas River Administration, filed in the office of the Colorado Water Conservation Board.

IVAN C. CRAWFORD, *Director.*

Mr. ASPINALL. May I ask a question there, Mr. Breitenstein? That shows the action of the Colorado River Compact Administration?

Mr. BREITENSTEIN. Yes.

Mr. ASPINALL. Members of which are from Kansas and Colorado?

Mr. BREITENSTEIN. That is correct, sir.

Mr. ASPINALL. The State of Kansas has not been asked for its position on this legislation. Is that correct?

Mr. BREITENSTEIN. I cannot tell you that. It was my understanding that they were to be asked for their comments, and I frankly thought they had, but I am not sure on that.

But this indicates the official action of the agency on the Arkansas River.

Mr. HOSMER. May I ask a question? Is there any later action by the Arkansas River Compact Administration?

Mr. BREITENSTEIN. No, sir; there has been no physical change in it. There has been no change for the plans for the physical structure since that time.

Mr. HOSMER. I understand the only change is in the cost.

Mr. BREITENSTEIN. Yes, the cost.

Just one other matter and I will conclude. That is that the bill now before you contains the provisions which must be included within Federal legislation to implement the operating principles that I have described to you.

Thank you very much.

Mr. ASPINALL. Mr Breitenstein, as I understand, you are appearing here today as the official representative of the Colorado Water Conservation Board and testify in that capacity.

Mr. BREITENSTEIN. That is correct, yes, sir.

Mr. ASPINALL. Do you think, knowing what you do of the Arkansas Valley, that the fact that the John Martin Reservoir has gone completely dry since the decision made by the Arkansas River Compact Commission, that that would have any effect on their decision? In other words, would they likely hold differently today than they did when they made their first decision?

Mr. BREITENSTEIN. In my opinion, they would not. That would have no bearing upon their decision whatsoever.

Mr. ASPINALL. In other words, the people of Kansas would be assured of the same delivery of water that was there from the original flow of the Arkansas?

Mr. BREITENSTEIN. That is correct, yes, sir.

Mr. HOSMER. I have one more question.

I am confused by the Colorado Conference Committee, which was created to consider the matter of Denver's request for 177,000 acre-feet of water. Now that is a separate and distinct body from the Colorado Water Conservation Board?

Mr. BREITENSTEIN. It is a committee appointed by the Colorado Water Conservation Board. The Colorado Water Conservation

Board is the official State agency. It created this committee to study this particular problem.

Mr. HOSMER. That water—which is contemplated to come out of the Blue River?

Mr. BREITENSTEIN. Yes, sir.

Mr. HOSMER. And that is a separate source from the Fryingpan-Arkansas?

Mr. BREITENSTEIN. Yes, sir. It is not shown on that map, but it is an entirely separate source many miles upstream from the confluence of the Roaring Fork and the Colorado Rivers.

Mr. HOSMER. Now the previous report, Senate 106, to which you referred, states on page 4 that this is a completely independent multiple-purpose unit that could be the first stage of a much larger project, which would be the Gunnison-Arkansas project.

Mr. BREITENSTEIN. Yes, sir.

Mr. HOSMER. And I believe yesterday it was testified that the complete project would take about 500,000 acre-feet out, and I think we have got something about 125,000 acre-feet on this prime transfer and 177,000 in Denver project. Now if there were some limitation as to an amount of water that could or should be diverted from the western to the eastern slope, is there not some inherent conflict between these various projects as to amounts?

Mr. BREITENSTEIN. Well, sir, there is a potential conflict, but so far as the official agency of the State of Colorado is concerned, it has approved this project, which is a badly needed project. And other projects would have to take their place in the picture with this one, we hope authorized and under construction.

Mr. HOSMER. In other words, they would be subsidiary to this project.

Mr. BREITENSTEIN. Yes, sir.

Mr. HOSMER. Thank you.

Mr. HARRISON. Mr. Saylor.

Mr. SAYLOR. Mr. Breitenstein, I would like to ask you a few questions. All members of this committee received a telegram. They have raised some questions in this telegram that I think you, as the attorney for the water conservation board out there, should at least answer as far as you are able to.

Mr. BREITENSTEIN. I will do my best.

Mr. SAYLOR. They ask several questions and allege that certain data which this committee should have for its understanding and better understanding of this project are not presently available.

The first question is: "An engineering report on the water presently available, presently committed, and needed in the reasonable future in the upper Colorado Basin. The only study on this has been undertaken by the State for completion November 1953."

Mr. BREITENSTEIN. May I answer that now?

Mr. SAYLOR. Yes, sir.

Mr. BREITENSTEIN. In that connection, this policy and review committee set up an engineering advisory committee upon which was one of the best known and most competent western slope engineers, Mr. Frank Merrill, and they made an exhaustive study of the water supplies of this area. And it was their judgment that the exportation of water contemplated by the Fryingpan-Arkansas was within the water available for diversion to the eastern side of the mountains.

Mr. SAYLOR. Is there a study that is being made at the present time by the State as this telegram says?

Mr. BREITENSTEIN. There is a study being made by this Colorado Comference Committee at the present time. That study was the result of the Denver request for the diversion of water from the Blue River, not because of the Fryingpan-Arkansas.

Mr. SAYLOR. Does it cover all of the water of Colorado?

Mr. BREITENSTEIN. No, sir. It covers the water of the Colorado River Basin in Colorado. That is just about half of the State.

Mr. SAYLOR. And is it correct that that report will be ready by November 1, 1953?

Mr. BREITENSTEIN. The report is scheduled to be ready by late fall of 1953. But I again point out that that report is not directed to the availability of water for the Fryingpan-Arkansas project.

Mr. SAYLOR. The second question, they say that we should have the study of the industrial potential of the upper Colorado River Basin. "The only study on this has been undertaken by the State for completion October 1, 1953."

Mr. BREITENSTEIN. Again I say there was an industrial and economic study made in connection with the work of the Policy and Review Committee on the Fryingpan-Arkansas project. The Colorado Conference Committee has entered into a study of the economics and industrial potential of the western slope. There again that is not essential to this project because the matter was given consideration at the time it was before the Policy and Review Committee.

Mr. SAYLOR. In the third question they say we should have a study by the Fish and Wildlife Service which was undertaken by that Bureau 3 years ago and is scheduled for completion June 30, 1953.

Mr. BREITENSTEIN. I have already pointed out that the operating principles provide for a minimum streamflow approved by the Colorado Game and Fish Commission, the Federal Fish and Wildlife Service, and the whole procedure had the blessing of the Izaak Walton League.

Mr. SAYLOR. The next question they raise—"A land classification study undertaken by the Bureau of Reclamation and scheduled for completion this fiscal year."

Mr. BREITENSTEIN. There is, Congressman, the Bureau of Reclamation has been carrying on a land classification study in western Colorado for about 25 years. I do not know when it will be finished. It is still going on.

Mr. SAYLOR. The next one——

Mr. ASPINALL. Just a minute, Mr. Chairman, if you will yield.

Mr. SAYLOR. Yes.

Mr. ASPINALL. I think, with the knowledge which you have, you will have to admit, however, that there has been no classification of all the lands in the Roaring Fork area.

Mr. BREITENSTEIN. I will agree with that.

Mr. ASPINALL. And there has been no determination as to the advisability of how much water will be necessary on some of the upland pasturelands; is that not right?

Mr. BREITENSTEIN. I think that is correct. The study has been going on and on and on. It is not completed. I will concede that.

Mr. ASPINALL. And that people of this area who raise sheep and cattle have a right to fear that they may be denied some water that

is presently available but which is not being put to use, but might be put to use on these high pasture lands?

Mr. BREITENSTEIN. Well, that is an engineering question on those matters, Congressman. I am not qualified on that.

Mr. ASPINALL. All right.

Mr. SAYLOR. Now the next thing they say we should have is—"A reconnaissance survey undertaken by region 4 of the Bureau of Reclamation for completion July 1, 1953."

Mr. BREITENSTEIN. I do not know what they are talking about.

Mr. SAYLOR. Next they say we should have this broken down into two parts—the re-regulation of Arkansas Valley water and the transmountain diversion of Colorado River water.

Mr. BREITENSTEIN. I understand the engineers have it so broken down, and those who appear here will cover that matter.

Mr. SAYLOR. Next they say, "There is no annual flow data on the Roaring Fork, Fryingpan, and Hunter Creek, although these are supposedly the source of supply water for the diversion."

Mr. BREITENSTEIN. The engineers can answer that. All I can say is they had a lot of tables showing flows when we had the drafting committee meeting.

Mr. SAYLOR. The next question in the telegram: "The report normally furnished by the Bureau of the Budget on such project is not yet available."

Mr. BREITENSTEIN. I know nothing about that.

Mr. SAYLOR. The next thing they say—"The figures developed by the Department of Justice on Colorado River water appropriation are not yet published. Your attention is invited to the fact that the proponents of the project are under the obligation of producing the above information as they bear the burden of proof."

Mr. BREITENSTEIN. I do not know what figures the Department of Justice is developing. I thought this was the Department of the Interior matter.

Now there is a lawsuit pending in Colorado involving Senate Document 80 in the Green Mountain Reservoir on the Blue River where the Department of Justice employed an engineer. I doubt if his findings are the type of findings you have in a public report. And anyhow, they have nothing to do with Fryingpan-Arkansas. That is the Green Mountain Reservoir, Senate Document 80, Colorado-Big Thompson project.

Mr. SAYLOR. What is that lawsuit about?

Mr. BREITENSTEIN. At the time of the authorization of the Colorado-Big Thompson project, there was an agreement made between the east slope and the west slope which was set forth in Senate Document 80 of that Congress. I forget the number. There has been a dispute, difference of opinion, between the United States, Colorado-Big Thompson district, and the east slope and the west slope as to the interpretation and effectiveness of that agreement. That lawsuit has been going on for several years, and it has not gotten to trial yet. It does not involve the Fryingpan-Arkansas.

There are provisions in the operating principles and in the bill which specifically provide that the authorization of this project does not affect any claims or any rights under Senate Document 80.

Mr. HARRISON. Does the Blue River represent a transmountain diversion?

Mr. BREITENSTEIN. The plan of the project of the city and county of Denver would contemplate a transmountain diversion from the Blue River to the South Platte River. The Blue River is a tributary of the Colorado.

Mr. D'EWART. If there is another transmountain diversion, then as I read this document put out by the water board, which is from the minutes of August 7, 1951, meeting, the Colorado Water Conservation Board, their approval of this Arkansas-Fryingpan project was with the express understanding that there should be no other diversion until the matter had been brought up for approval of that board.

Colorado's approval of the plans set out in the report and of the authorization of the project is conditioned upon compliance with the operating principles set forth in the report and also full recognition and compliance with those portions of the policy and review committee's report, as revised and approved by the Colorado Water Conservation Board.

It goes on to cite there should be no other diversions until they have been reviewed and approved.

Mr. ASPINALL. Now, Mr. Chairman——

Mr. HARRISON. Will the gentleman yield?

Mr. D'EWART. Yes.

Mr. ASPINALL. That no further approval of requests for Federal funds means something there, because if Denver could get the money on its own accord to make the transmountain diversion, the Colorado Water Conservation Board has not spoken on whether or not they would approve the matter. The question is the request for Federal funds. Am I not right?

Mr. BREITENSTEIN. That is right. It refers to federally financed transmountain diversion projects.

Mr. D'EWART. As I read this report, approval of the project was conditioned on there should be no other transmountain diversions.

Mr. BREITENSTEIN. That is not a condition, Congressman, that is a statement of policy of the board. And the work of this Colorado conference committee that I mentioned is designed to carry out the investigations which were contemplated by that resolution.

Mr. D'EWART. I do not find the exact quote here.

Mr. PILLION. Mr. Chairman.

Mr. HARRISON. Mr. Pillion.

Mr. PILLION. With respect to the item of municipal water, Mr. Breitenstein, is there any supply contemplated for the city of Denver or just Pueblo?

Mr. BREITENSTEIN. From a geographical standpoint, Denver could not get any water from this project.

Mr. PILLION. I see. And the municipal project that is contemplated and is itemized here in this $32 million, how many communities will that serve, and how many people are involved?

Mr. BREITENSTEIN. I cannot tell you the population. I imagine it is around 130,000 or 140,000 or maybe 150,000. If you include Colorado Springs it would be more than that. They are the communities of Pueblo, Rocky Ford, La Junta, Las Animas, Lamar, and other towns, and possibly Colorado Springs.

Mr. PILLION. Is not that an awful lot of money for a water supply for 150,000 people, judging it from a comparative cost of other water supply systems in other municipalities in the country?

Mr. BREITENSTEIN. I cannot give you any comparison on the figures. But there is this situation: If those towns are going to have

more water, this is the only known source for that water. So it is a question of taking this or getting nothing.

Mr. PILLION. In connection with that, is not this a new field of the Federal Government being asked to finance municipal water supplies which ordinarily is a local responsibility? Is not this a new field? Do you know of any other project?

Mr. BREITENSTEIN. You have the second barrel of the San Diego aqueduct. You have the Bureau of Reclamation development in Texas. I forget whether it is on the Canadian or Colorado River. I think the Canadian. You have the Weber project in Utah and the Collbran project in Colorado which was authorized the last session, and perhaps others. I can think of those.

Mr. PILLION. Would you say that most of those are based upon defense needs and defense projects and not straight-out municipal water financing by the Federal Government?

Mr. BREITENSTEIN. The defense projects were tied in with San Diego and Collbran. I do not know about the Utah and Texas projects. I could not tell you on that.

Mr. PILLION. Has there been any thought given to the idea that perhaps part of the project or a portion of it might be financed by local interest such as the State or the municipalities themselves?

Mr. BREITENSTEIN. There will appear before you, Congressman, officials from the city of Pueblo and its water department. They can answer that question of their own knowledge.

Mr. PILLION. The reason I asked, this appears to be going into a wholly new field. If this is an example, we will have hundreds of thousands of municipalities coming and asking us to finance their municipal water supplies. At least a hundred thousand would have need for financing their water supplies. It is a whole new field, a whole new responsibility.

Mr. BREITENSTEIN. The 1939 Reclamation Act contemplates the use of water from a reclamation project for municipal purposes. That was passed some 14 years ago, and it is my recollection that under previous acts, water has been supplied for municipal purposes. Of course, here the effort has been to have a multiple-use project which would get the greatest beneficial use out of the water. And if you can use it for municipal purposes and get the very high return flow which always develops from municipal purposes and then use it for irrigation, you are getting another duty out of the water.

Mr. PILLION. The reason I ask—back home we have a water problem. The water supply system supplies 200,000 people, and the water authority is taking over the private water supply system, and they think $12 million is too much money for a system that is supplying 200,000 people. Here we have a $32 million project to supply, roughly, 150,000 people.

Mr. BREITENSTEIN. We do not have very much water in the West. And when you compare—well, look at the cost of the Metropolitan aqueduct in the State of California.

Mr. HARRISON. Mr. D'Ewart.

Mr. D'EWART. I have that quotation now with reference to the statement you made about transmountain diversion, and I will read it:

> This Board feels it should interpose no objection to the proposed diversion, but with the clear and distinct understanding this consent shall not be considered as waiver of objections to any other federally financed transmountain diversion of the waters of the Colorado River; and with the further understanding that the

State Water Conservation Board of the State of Colorado shall not approve of any other such federally financed diversion project until the study of the needs of the western slope be fully completed so that an intelligent decision relative to such needs may be given.

Mr. BREITENSTEIN. Yes, sir.

Mr. D'EWART. Under those limitations, how can you go ahead with plans for diverting the Blue River?

Mr. BREITENSTEIN. Congressman, the board is not going ahead with such plans.

Mr. D'EWART. I asked you, and you said they were going ahead.

Mr. BREITENSTEIN. No. The project is planned by the Denver Board of Water Commissioners. They asked the approval of the Colorado Water Conservation Board. The board declined to give its approval. It set up this Colorado conference committee to study the problem. After that committee makes its report, then the Colorado Water Conservation Board will reconsider the matter.

Mr. D'EWART. And there is no Blue River diversion plan in this project?

Mr. BREITENSTEIN. No, sir.

Mr. HARRISON. Thank you, Mr. Breitenstein.

I might say at this time, we want to hear all the witnesses here, we want to give them all the time possible. But I also may state very frankly that if all the witnesses take as much time as those have done previously, there will be very few of the witnesses heard because we do not have that time at our disposal. I would appreciate very much if you would make your statements as brief as possible so we can hear everybody that comes from out of town.

Who is your next witness, Mr. Chenoweth?

Mr. CHENOWETH. Mr. Chairman, the next witness is John Geoffrey Will, of Grand Junction, Colo., who is secretary of the Upper Colorado River Commission.

STATEMENT OF JOHN GEOFFREY WILL, SECRETARY AND GENERAL COUNSEL OF THE UPPER COLORADO RIVER COMMISSION, GRAND JUNCTION, COLO.

Mr. WILL. Mr. Chairman, I have a very brief statement here that perhaps, in view of your admonition a moment ago, I had best read.

My name is John Geoffrey Will. I am secretary and general counsel of the Upper Colorado River Commission, the headquarters of which are located at Grand Junction, Colo.

The Upper Colorado River Commission is an interstate body, created under and by virtue of the Upper Colorado River Basin compact, entered into in October of 1948 by the States of Arizona, Colorado, New Mexico, Utah and Wyoming, ratified by their respective legislatures and duly consented to by the Congress.

One of the principal purposes of the Upper Colorado River Basin compact and, consequently, one of the principal objectives of the Upper Colorado River Commission, is to secure the expeditious agricultural and industrial development of the Upper Colorado River Basin States. To that end, the commission seeks the authorization of a project known as the "Colorado River storage project and participating projects", with respect to which bills have been introduced

in the House of Representatives by Mr. Aspinall, Mr. Dawson and Mr. Stringfellow. The interests of the commission are, however, not by any means confined to the authorization of that one project. In line with the objectives stated a moment ago, the commission supports the authorization of all worthy projects looking to the development of the agricultural and industrial resources of the Upper Colorado River Basin States. Furthermore, the commission supports the authorization of sound Federal reclamation projects throughout the 17 Western States. Thus it is that the commission has supported the authorization of the central Arizona project, in Arizona, the second barrel of the San Diego Aqueduct, in California, and the Collbran project in Colorado. I am glad of this opportunity to testify in behalf of the authorization of the Fryingpan-Arkansas project, Colorado.

Expert witnesses, appearing either before or after me, will have discussed or will discuss the physical, engineering, economic, and legal aspects of the Fryingpan-Arkansas project. It is not my purpose to discuss these aspects of the project. Nor would it be appropriate for me to do so, since I cannot qualify as an expert with respect to them. I can and I do testify, however, as a lay witness, to my understanding of the urgent needs for water in the Arkansas Valley of Colorado that have prompted the investigations of the possibilities lying in the importation of water from the Colorado River system and the subsequent production of a project report. Quite aside from the agricultural aspects of this project (and these aspects are important), the Fryingpan-Arkansas project will constitute the means whereby the great city of Pueblo, Colo., and a number of towns and communities in the Arkansas Valley will achieve supplemental municipal water supplies. I can and I do, as a lay witness, testify for my understanding regarding the desperate need that exists for such additional municipal water.

The water requirements of the Fryingpan-Arkansas project are well within Colorado's share of the consumptive use of the waters of the Colorado River system under the terms of the upper Colorado River Basin compact of 1948. I am informed that the project will pay out in accordance with general policies laid down by the Federal reclamation laws. I hope, therefore, that this committee will give the Fryingpan-Arkansas project favorable consideration.

Mr. HARRISON. Any questions?

Mr. ASPINALL. Mr. Chairman.

Mr. HARRISON. Mr. Aspinall.

Mr. ASPINALL. I want it made plain here, you are testifying as a lay witness this morning, are you not, Mr. Will?

Mr. WILL. Yes, Congressman.

Mr. ASPINALL. And not in your official capacity as secretary of the Upper Colorado River Basin?

Mr. WILL. I am here in my official capacity, Congressman, but my expression "lay" was used to make it clear to the committee that I do not pose as an expert with respect to this particular project on either economic or engineering or other aspects.

Mr. ASPINALL. Let me ask it the other way: Has the Upper Colorado River Commission taken an official position with respect to the Fryingpan-Arkansas project?

Mr. WILL. Not specifically with regard to the Fryingpan-Arkansas project.

Mr. ASPINALL. Let me ask this question: Were you directed by the Upper Colorado River Commission to attend this hearing and speak in favor of this project?

Mr. WILL. No, sir.

Mr. ASPINALL. Also one other question: You are well aware of the fact that there are those who differ from your statement about the availability presently of water in western Colorado for transmountain diversion purposes, are you not?

Mr. WILL. My statement, Congressman, went to the legal availability of the water. I did not go into the question of policy being discussed within the State.

Mr. ASPINALL. You did not go into the question of physical availability of water, did you?

Mr. WILL. I am quite sure that I did not. If I did, I did not intend to.

Mr. ASPINALL. Very well.

Mr. HARRISON. Mr. D'Ewart.

Mr. D'EWART. You lead me to ask, why are you for the project when you do not know whether the water is there?

Mr. WILL. I do know the water is physically there. I do know it is legally available.

Mr. HARRISON. Mr. Saylor.

Mr. SAYLOR. I am interested, Mr. Will, in your statement from an entirely different angle. The Reclamation Act of 1939, as amended, says that you could have multiple-use, but this is the first time that I ever have seen a project that bases its principal reason for coming before this committee not on the fact of reclamation but on the fact that it is used for municipal water. Am I to gather that the position of the Upper Colorado River Commission is that they feel that use of this water should be justified not on the basis of reclamation but on the basis of municipal water?

Mr. WILL. Mr. Saylor, in that respect the policy of the commission is strictly analogous to the policy of most of the constitutions of our 17 Western States which lay down domestic uses as first in order. We are not at all shocked at a proposed development that will have among its primary purposes the provision of water for domestic and industrial purposes.

I personally assure you, Mr. Saylor, that this is not a new departure so far as municipal purposes are concerned.

The old Ogden River project, the Provo River project in Utah, are good examples of projects for purposes of the provision of municipal water. The Canadian River project, which was mentioned by Mr. Breitenstein, is a recent one.

Mr. SAYLOR. But they have all been, Mr. Will, ones in which the principal use of the water was for reclamation purposes.

Mr. WILL. I do not think you can say that as to the Canadian River project, for instance.

Mr. SAYLOR. When that was reported out of this committee, I think if you will look at the committee report, it was specifically stated that that was not to establish a precedent.

Mr. WILL. Yes, sir, I remember that. But as to that, I say, Mr. Saylor, that along with the other precedents that have been set by the Congress of the United States in authorizing projects that had important domestic water supply aspects, it nevertheless did establish

a precedent. It could not help it. Anything we do establishes precedent.

Mr. D'EWART. Will you yield to me?

Mr. SAYLOR. Yes.

Mr. D'EWART. Mr. Will, if we are going to follow your logic, then this committee will have to be much more careful than it has ever been in the past in approving projects.

Mr. WILL. I would say the committee has always been careful.

Mr. D'EWART. We have gone on the understanding that when we said an act we took did not set a precedent we literally meant what we said. You are saying we did not mean it.

Mr. WILL. I beg your pardon, sir.

Mr. D'EWART. If your logic is correct, then this committee has got to stop doing some of the things it has done.

Mr. WILL. I am not saying that this committee did not mean what it said. I am satisfied every time this committee makes a statement, it means what it says.

Mr. D'EWART. Then when you said it was not a precedent——

Mr. WILL. I am talking in terms of legal effects.

Mr. D'EWART. And when we said it was not a precedent, you will agree we meant exactly that and nothing else.

Mr. WILL. Surely I agree with that.

Mr. ENGLE. What you are saying, though, is that you cannot unring a bell.

Mr. WILL. That is right.

Mr. HARRISON. Any questions, Mr. Regan?

Mr. REGAN. No.

Mr. DAWSON. I would like to ask a question.

Mr. SAYLOR. Mr. Dawson.

Mr. DAWSON. Mr. Will, I understand you are appearing here as a representative of the Upper Colorado Commission?

Mr. WILL. That is right.

Mr. DAWSON. But the only bearing that this project might have on the upper Colorado project is as to the availability of water; is that correct?

Mr. WILL. Yes. This is a project that involves the use of the waters of the Colorado River system. Naturally, therefore, since the commission has laid down the policy of promoting the use within their appropriate share as determined by the upper basin compact of the waters of the Colorado River Basin by each State signatory to the upper basin compact, I am here to encourage the authorization of a project which seems to me to be worthy, that will contribute toward that utilization.

Mr. DAWSON. But that is simply your personal views, and not the views of the Upper Colorado Commission?

Mr. WILL. The commission has not gone specifically into the Fryingpan-Arkansas project.

Mr. DAWSON. As a matter of fact, the Fryingpan-Arkansas project is not a part of the upper Colorado project development?

Mr. WILL. No, sir, it is not.

Mr. BREITENSTEIN. Mr. Congressman, I do not want to disagree with Mr. Will, but I am a member of the Upper Colorado River Commission. At a meeting held in February, 1953, the commission said it would approve any project approved by the Colorado Water Con-

servation Board, provided that project used water within the Colorado share. And this project has been approved by the Colorado Water Conservation Board.

Mr. HOSMER. Will you yield to a question right there?

Mr. BREITENSTEIN. Yes.

Mr. HOSMER. Was this gentleman here authorized by this Upper Colorado River Commission to come back here by any official action?

Mr. BREITENSTEIN. As one of his superiors, I say he is; yes, sir.

Mr. HOSMER. Was there any official action of this commission? This gentleman has dodged all of these questions here very cleverly, but I want to know did this Upper Colorado Commission take any official action sending him back here?

Mr. BREITENSTEIN. So far as I am concerned, I am not dodging any questions and I do not think Mr. Will was. I am the Colorado member of the Upper Colorado River Commission.

Mr. HOSMER. I understand that.

Mr. BREITENSTEIN. Now they have adopted a resolution unanimously saying they would support every Colorado project approved by the Colorado Water Conservation Board, provided only it is within the Colorado share of water.

Mr. HOSMER. But so far you have not responded to my question.

Mr. BREITENSTEIN. All right, what do you want?

Mr. HOSMER. I want you to tell me whether the Upper Colorado River Commission authorized this man to come back here in his official capacity to testify before this committee of Congress.

Mr. BREITENSTEIN. He is supposed to come back here in his official capacity to support all actions of the commission and I say that the commission has acted in favor of this project, and it is his duty to do so.

Mr. HARRISON. The Chair might say, I do not think the witness is answering the question that was asked. And I think the question is a question that should be answered "Yes" or "No" whether there was an actual action and authority by the board. Will you repeat your question, Mr. Hosmer?

Mr. HOSMER. Again I will say, was he authorized by any official action of this commission to come back here and testify before this committee of Congress at this hearing?

Mr. BREITENSTEIN. In my opinion, he was, and it is within his duty to do so.

Mr. HOSMER. You are a member of the board?

Mr. BREITENSTEIN. Yes, sir.

Mr. HOSMER. Tell us what action was taken.

Mr. BREITENSTEIN. The action of the commission taken in February 1953, wherein the commission unanimously said that the commission would support, and directed its employees to support, any project approved by the Colorado Water Conservation Board, provided only that the water used as contemplated by that project was within the share of Colorado.

Mr. HOSMER. In other words, no specific investigation was made by the Upper Colorado Commission on this, they just will accept anything that this other body does and approve of it; is that correct?

Mr. BREITENSTEIN. Oh, no, no, not that. The Colorado River Commission has an engineering staff to go into these matters.

Mr. HOSMER. My idea so far is that the Upper Colorado River Commission is trying to come in the back door on this.

Mr. DAWSON. Mr. Chairman, I thought I had the floor here. I was asking some questions. And now he has taken the ball away from me.

Mr. HARRISON. Mr. Dawson.

Mr. DAWSON. I want to clear up this point now, Mr. Will. And I might make a statement as to what I think your official capacity is here. You are here as a representative of the Upper Colorado Commission, and, according to the statement just made by Mr. Breitenstein, the only concern that the Upper Colorado Commission has in this water at all is as to whether or not the amount of water that they are using on this project is available. It is not a part of the upper Colorado River project. And as long as the 51 percent Colorado is entitled to is not exceeded, then your Commission has taken the view that whatever the official Colorado Commission decides to do with the water is their business. And you are not here as an official witness to testify as to the details of whether it is good or bad, or what it might be, but you have agreed in accordance with your official actions to go along with that board. Is that correct?

Mr. WILL. That is right.

Mr. DAWSON. Have I misstated that, Mr. Breitenstein?

Mr. BREITENSTEIN. That is the way I understand it. And if Mr. Will does not agree with me, I would like to know it.

Mr. WILL. Well, Mr. Breitenstein just testified he is one of my bosses and I had better agree.

Mr. DAWSON. That is all I had.

I would like to also clarify the record of yesterday. I made an inference that Mr. Will had written me to the effect that they did not want to go ahead with the hearing of this project at this time, or to give approval. But that was a misinterpretation of what he had written to me before. I think what he has said now more nearly conforms to what he did write.

Mr. PILLION. Did not the witness state to Mr. Aspinall's question that he was not specifically authorized to come here?

Mr. ASPINALL. Mr. Pillion, I think we have crossed both sides of the ridge in this matter. Mr. Will is not here by any special directive of the Colorado River Commission. That was the answer to my question.

Mr. WILL. That is right.

Mr. ASPINALL. But by an authorized general directive, he can go to Pasadena or he can go to London, perhaps, on matters in which they have some interest. On the other hand, as I understand the evidence, Mr. Will, this project as such has never been talked over in detail before the Upper Colorado River Commission, and the position which you are taking simply relates to the general proposition of favoring worthwhile Colorado River projects. Is that right?

Mr. WILL. That is right.

Mr. HARRISON. Thank you, Mr. Will.

Mr. HOSMER. I have one more question. Your opinion as to whether or not this comes within Colorado's share of the contribution of the waters of the Colorado River system, that is an opinion expressed as to quantitative amount of water, is it not, the quantity of water that will be used?

Mr. WILL. Yes.

Mr. HOSMER. Thank you.

Mr. HARRISON. Judge Chenoweth, who is your next witness?

Mr. CHENOWETH. Mr. Chairman, I am sure the next witness will receive a very cordial reception before this committee since he is a former member of this committee. I take pleasure in announcing our next witness as Hon. Fred G. Aandahl, Assistant Secretary of the Interior in charge of water and power.

STATEMENT OF HON. FRED G. AANDAHL, ASSISTANT SECRETARY, DEPARTMENT OF THE INTERIOR; ACCOMPANIED BY GEORGE E. TOMLINSON, ASSISTANT DIRECTOR, PROJECT PLANNING, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR

Mr. AANDAHL. Mr. Chairman, my appearance here this morning is for the purpose of presenting at the earliest possible time to this committee the report of the Department of the Interior, together with a report from the Bureau of the Budget. The letter of transmittal addressed to the Speaker of the House and the President of the Senate was signed in the Department of the Interior less than an hour ago. A copy of that report is ready for your desk, and we have additional copies that can be made available to the other members of the committee.

(COMMITTEE NOTE.—Following are the Department of Interior's letter of June 9, 1953, to the Speaker; the Bureau of the Budget's letter of June 8, 1953, to the Secretary of the Interior; and the Secretary's letter of April 30, 1953, to the President:)

DEPARTMENT OF THE INTERIOR,
Washington 25, D. C., June 9, 1953.

Hon. JOSEPH W. MARTIN, Jr.
Speaker of the House of Representatives,
Washington 25, D. C.

MY DEAR MR. SPEAKER: My report on the Fryingpan-Arkansas project, Colorado, is transmitted herewith pursuant to section 9 (a) of the Reclamation Project Act of 1939 (53 Stat. 1187).

The waters of the Arkansas River in the upper Arkansas River Basin are overappropriated, resulting in serious loss in crop production on presently irrigated farmland. Stabilized agricultural economy in the area requires supplemental water supplies. Additional quantity and better quality of domestic and municipal water is critically needed in the Arkansas Valley, Colorado. There is a need for additional electric energy in the project power market area and normal uses of electric energy would expand rapidly if not restricted by a limited supply. Floods in the upper Arkansas Valley threaten the loss of property and discourage investment. Sediment and pollution control are needed. The most pressing and immediate needs of the upper Arkansas River Basin can be met by the Fryingpan-Arkansas project which is herein recommended for authorization and construction.

The report has been transmitted to the States of the Colorado River Basin, to the States of Kansas and Oklahoma, and to the Secretary of the Army for their views and recommendations as required by the provisions of the Flood Control Act of 1944 (58 Stat. 887); to the State of Colorado for the comments of the head of the agency exercising administration over the wildlife resources of the State, as required by the provisions of the act of August 14, 1946 (60 Stat. 1080); and to the Departments of Agriculture and Commerce, the Federal Power Commission, the Corps of Engineers, and the Public Health Service, in accordance with interagency agreements. Copies of all the comments received are enclosed with the report.

The report and the comments received were submitted to the President and the Bureau of the Budget has advised that there would be no objection to the

submittal of the report to the Congress. A copy of Assistant Budget Director Rowland Hughes' letter of June 8, 1953, is attached.

Sincerely yours,

RALPH A. TUDOR,
Acting Secretary of the Interior.

Enclosures.
Identical letter to: Hon. Richard M. Nixon, President of the Senate.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., June 8, 1953.

The honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: Receipt is acknowledged of your letter of April 30, 1953, submitting your revised report on the Fryingpan-Arkansas project, Colorado, and requesting advice as to its relationship to the program of the President.

This proposed multipurpose project would provide irrigation, power, flood control, municipal water and other benefits. The plan contemplates several small power plants and a system of canals, reservoirs, and tunnels to divert water from the western to the eastern slope of the Continental Divide and to produce better control and utilization of upper Arkansas River water.

The estimated cost is $172,898,000, of which $75,128,000 is allocated to irrigation, $41,945,000 to power, $32,654,000 to municipal water supply—reimbursable items—and $20,341,000 to flood control and $2,830,000 to fish and wildlife—nonreimbursable items. The benefit-cost ratio is stated as 1.48 to 1.00

The repayment plan contemplates that the power and municipal water supply investments would be entirely repaid with interest at 2½ percent in 53 and 63 years, respectively, or within 50 years after all facilities are placed in operation. The plan also contemplates that the irrigation investment would be returned without interest over a period of 69 years, in part from payments by irrigation water users and in part by revenues from power and municipal water supply after these latter investments are fully repaid. The irrigators would repay $622,000 annually for 69 years, based on an ad valorem tax of 1 mill and payments ranging from $5.40 per acre-foot for water diverted from the Colorado River Basin to $2.25 per acre-foot for reregulated Arkansas River winter flow. Irrigators now have prior water rights to the Arkansas River winter flow at no cost.

This office believes that a reasonable basis for appraising the repayment of Federal irrigation projects should be not more than 50 years, and that this would be consistent with the general practice of most Federal agencies in determining the economic evaluation and the financial feasibility of water resources developments. On the basis of a 50-year repayment and the Department of the Interior's estimate of the water users' ability to repay, the water users would return $31,100,000 of the $70,128,000 allocated to irrigation, leaving unpaid at the end of 50 years $44,028,000, or 60 percent of the estimated construction cost. Thus, the water users would have paid $100 per acre out of a total investment of $243 per acre.

The proposed project report, on the other hand, contemplates repayment by the water users within 69 years rather than 50 years. During the additional 19 years, the above-mentioned balance of $44,028,000 would be repaid. Irrigators would pay $11,818,000, and the remainder of the unpaid construction cost amounting to $32,210,000 would be met from revenues on power and municipal water supply. As noted above, the allocation of costs to power and municipal water supply, under the proposed project, would be fully repaid with interest within 50 years after completion of all facilities. Revenues derived after the 50 years would be used to show repayment of the irrigation investment.

Federal and State agencies, in commenting on the original project report, questioned (1) the high cost of a limited supply of supplemental irrigation water, (2) the ability of the water users to repay annually as much of the irrigation costs as proposed, and (3) the ultimate amount of transmountain diversion and its effect on the quality and use of Colorado River water available to the Lower Basin. Notwithstanding the substantial increases in the estimated project costs and the greater estimate of the ability of the irrigators to repay, as shown in the revised report as compared with the original report, the comments of the States and Federal agencies have not been furnished on the revised report.

Approximately 63 percent of the irrigation benefits of the project are of an indirect character, consisting of additional business from increased purchases,

marketing, and processing activities. Without these indirect benefits the project over a period of 50 years would not show a favorable benefit-cost ratio. While this office recognizes that there are definite indirect benefits, we believe that they should not be assigned a monetary value and should not be relied upon for the primary justification of a project. It is our understanding that this is in accord with your present views.

In the consideration of irrigation projects, it should be noted that, under existing law, the interest cost on the irrigation investment is not charged to the water users, but is borne by the Federal Government. In the case of the Fryingpan-Arkansas project, the average annual interest cost on the irrigation investment during the first 50 years would amount to about $1,500,000, on the basis of simple interest at 2½ percent, or approximately $5 per acre per year.

As indicated by the comments of the Department of Agriculture on the original report, under dates of October 10, 1951, and May 23, 1952, in view of the obvious high cost of importing water from the Colorado River Basin, a separate evaluation should be made of the feasibility of importing water from the Colorado River Basin, considered as an incremental addition rather than an integral part of the project. Furthermore, there is no evidence in the report indicating a willingness by the irrigators to repay the proposed charges for an average annual supplemental water supply of about one-half acre-foot per acre.

Plans for municipal water supplies appear doubtful because of the high water rates, optimistic estimates of average water deliveries, and uncertainty of including all proposed facilities and functions in the ultimate plans. We also believe that costs of correcting damages to fish and wildlife resources caused by the building of the project should be treated as part of the construction costs and allocated to the various purposes in the same manner as other damages, including relocations.

Our review indicates that further study of various aspects of the project might be warranted. If, however, you deem it advisable, particularly in the light of the committee's desire for an early hearing, there would be no objection to the transmittal of the report, together with a copy of this letter, for the consideration of the Congress.

Sincerely yours,

ROWLAND HUGHES,
Assistant Director.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington 25, D. C., April 30, 1953.

THE PRESIDENT, THE WHITE HOUSE
(Through the Bureau of the Budget).

MY DEAR MR. PRESIDENT: On October 19, 1951, my predecessor in office submitted his report on the Fryingpan-Arkansas project, Colorado, a multiple-purpose project for partial development of the water resources of the upper Arkansas River Basin and involving transmountain diversion of water from the Roaring Fork River, a tributary of the Colorado. By letter of January 27, 1953, Budget Director Dodge called my attention to this report, among others, and asked that it be reviewed to determine whether it conforms to the present program of the Department of the Interior, and whether any modification or revision should be made.

The report, as previously submitted, recommended immediate authorization for the construction and operation of a system of reservoirs, canals, tunnel, diversion dams, powerplants, and municipal water supply facilities for irrigation and municipal water supply, flood control, power, sediment control, stream pollution abatement, and preservation and propagation of fish and wildlife.

After review of the report and study of the data and information presently available, I have determined that no modification in the plan of development is required. However, the recommendations in the report are hereby modified to recommend, instead of the application of the so-called interest component as heretofore contemplated, the return of that part of the construction cost of the project which is allocated to irrigation and assigned to be repaid from net power and municipal water revenues subsequent to the repayment of the commercial power and municipal water investments—these latter investments to bear interest, on the unamortized balances, at a rate equal to the average rate paid by the United States on its long-term loans outstanding at the date of authorization of the project. We do not favor the use of the so-called interest component as an aid in paying out the irrigation costs of this project.

The repayments and economic analyses have been revised to reflect the increased costs since the basic report was prepared. Summaries of these revised studies are enclosed. The repayment analysis includes, as a part of the construction cost to be repaid, interest during construction on power and municipal water investments. In the economic analysis the power benefits are calculated on the basis of the value of power in the area and an analysis by functions is included.

The estimated cost of the Fryingpan-Arkansas project is $172,898,000 at January 1953 price levels. If the allocations are revised to incorporate the increased costs and the repayment plan is set up on the alternative basis hereinbefore suggested, with an interest rate estimated at 2.5 percent, return of irrigation costs which exceed those that can be repaid by the water users themselves could be accomplished in an overall period of 69 years or 17 additional years after the power investment is returned and 6 years after the municipal water investment is returned.

The revised economic analysis indicates that the benefits from construction of the project would exceed the costs in a ratio of 1.48 to 1.00 and that the inclusion of all functions is justified.

Supplemental water supplies, both for irrigation and for municipal use, are sorely needed in the Arkansas River Basin. Serious losses occur annually in crop production on presently irrigated farmland while the need for additional and better quality municipal water is fast becoming critical. Protection is needed against floods which result in extensive damages in the upper Arkansas Valley. Also, there is a need in the area for the electric energy from the project and normal uses for electricity would expand rapidly if not restricted by a limited supply.

This project and the report as herein modified conform to my program. Therefore, I transmit, pursuant to section 9 (a) of the Reclamation Project Act of 1939, this report which incorporates the report of the previous Secretary of the Interior and the comments of the affected States and Federal agencies as my report on the Fryingpan-Arkansas project.

I shall appreciate receiving advice concerning the relationship of this project to your program before I transmit the report to the Congress in accordance with the provisions of the Reclamation Project Act of 1939.

Sincerely yours,

DOUGLAS MCKAY, *Secretary of the Interior.*

TABLE I.—*Fryingpan-Arkansas project summary of benefit-cost analysis*

Item	Amount	Item	Amount
Public investment:		Annual benefits:	
Estimated construction costs	$172,898,000	Municipal water	$1,662,000
Interest during construction [1]	6,594,000		
		Irrigation [3]	
Total	179,492,000	Direct	1,598,000
		Indirect	2,757,000
Annual costs:			
Equivalent of public investment	4,902,000	Total	4,355,000
		Power [4]	2,702,000
Operation, maintenance, and replacement:		Flood control [5]	598,000
Municipal water	412,000	Sediment control	141,000
Irrigation	59,000		
Power	842,000	Total	9,458,000
Total	1,313,000	Benefit-cost ratio:	
		Total benefits	1.48:1.00
Regulation by upper Colorado storage project [2]	163,000	Direct benefits	1.05:1.00
Total	6,378,000		

[1] Interest during construction computations appearing in report have been reanalyzed; realistic construction periods were set up by features and made consistent with development periods.
[2] Annual cost of regulation provided by upper Colorado River storage project at $2.35 per acre-foot.
[3] Adjusted to 215 agricultural price index; excludes interests and wages shown in report as direct benefits to others; indirect benefits reflects increased marketing and processing activities and increases in farm purchases.
[4] Benefits reflect prospective value of power in area.
[5] Adjusted to reflect projected prices, Engineering News-Record Index of 180 (1939=100).

TABLE IA.—*Fryingpan-Arkansas project, summary of benefit-cost analysis by functions*

Item	Total project	Municipal water	Irrigation	Power	Flood control	Fish and wildlife
Public investment:						
Estimated construction costs	$172,898,000	$32,654,000	$75,128,000	$41,945,000	$20,341,000	$2,830,000
Interest during construction	6,594,000	1,154,000	3,143,000	1,330,000	849,000	118,000
Total	179,492,000	33,808,000	78,271,000	43,275,000	21,190,000	2,948,000
Annual costs:						
Equivalent of public investment	4,902,000	923,000	2,138,000	1,182,000	579,000	80,000
Operation, maintenance, and replacement	1,313,000	412,000	59,000	842,000	----------	----------
Regulation by upper Colorado storage project [1]	163,000	----------	----------	----------	----------	----------
Total	6,378,000	1,335,000	2,197,000	2,024,000	579,000	80,000
Annual benefits:						
Direct [2]	6,701,000	1,662,000	1,598,000	2,702,000	598,000	----------
Indirect	2,757,000	----------	2,757,000	----------	----------	----------
Total	9,458,000	1,662,000	4,355,000	2,702,000	598,000	----------
Benefit-cost ratio:						
Total benefits	1.48	1.24	1.96	1.33	1.03	----------
Direct benefits	1.05	1.24	.73	1.33	1.03	----------

[1] Not distributed to functions.
[2] Includes $141,000 benefits from sediment control.

TABLE II.—*Fryingpan-Arkansas project, segregation of costs*

Feature	January 1953 construction costs					Annual operation, maintenance, and replacement					
	Total	Specific costs			Joint costs	Total			Specific operation, maintenance, and replacement		Joint operation, maintenance, and replacement
		Power	Municipal water supply	Fish and wildlife [1]		Operation and maintenance	2½ percent 50-years replacement	Operation, maintenance, and replacement	Power	Municipal water	
Aspen Dam and Reservoir	$8,102,000				$8,102,000	$2,000	$1,880	$3,880			$3,880
Sugar Loaf Dam and Reservoir	7,248,000				7,248,000	2,760	1,680	4,440			4,440
Twin Lakes Dam and Reservoir	10,222,000				10,222,000	3,900	2,370	6,270			6,270
Salida Afterbay	310,000	$310,000				1,870	70	1,940	$1,940		
Pueblo Dam and Reservoir	43,453,000				43,453,000	6,200	10,090	16,290			16,290
Main purification plant	7,148,000		$7,148,000			33,750	10,290	44,040		$44,040	
Pueblo pumping plant	1,470,000		1,470,000			93,320	18,340	111,660		111,660	
Colorado Springs pumping plant	155,000		155,000			4,780	1,930	6,710			6,710
Hunter Creek-Aspen Canal	288,000				288,000	2,150	70	2,220			2,220
Hunter Creek extension canal	409,000			$409,000		4,700	90	4,790			4,790
South Side collection system	9,263,000			805,000	8,457,000	2,800		2,800			2,800
North Side collection system	21,126,000			383,000	20,743,000	29,530	940	30,470			30,470
Fryingpan-Arkansas tunnel	10,111,000			1,232,000	8,879,000	3,030		3,030			3,030
Snowden Canal	792,000				792,000	7,000	180	7,180			7,180
Arkansas power canal:											
Elbert Canal	1,759,000	1,759,000				26,250	410	26,660	26,660		
Twin Lakes-Otero Canal	1,623,000	1,623,000				11,460	380	11,840	11,840		
Otero-Wapaco Canal	2,188,000	2,188,000				15,470	510	15,980	15,980		
Wapaco diversion	266,000	266,000				1,990	60	2,050	2,050		
Wapaco-Princeton Canal	2,466,000	2,466,000				18,370	570	18,940	18,940		
Chalk Creek diversion	96,000	96,000				720	20	740	740		
Princeton-Pancho Canal	2,023,000	2,023,000				15,100	470	15,570	15,570		
Pancho-Salida Canal	2,508,000	2,508,000				17,800	580	18,380	18,380		
Oil Creek-Brush hollow canal	361,000		361,000			4,390	80	4,470		4,470	
Pueblo water conduit	1,735,000		1,735,000			26,020	7,810	33,830		33,380	
Arkansas Valley water conduit	10,631,000		10,631,000			159,460	47,840	207,300		207,300	
Powerplants	14,917,000	14,917,000				378,540	161,510	540,050	540,050		
Powerplant switchyards	3,885,000	3,885,000				34,940	39,030	73,970	73,970		
Transmission lines	5,079,000	5,079,000				31,150	58,950	90,100	90,100		
Transmission substations	2,091,000	2,091,000				31,130	21,010	52,140	52,140		
General property	1,173,000				1,173,000						
Total	172,898,000	39,211,000	21,500,000	2,830,000	109,357,000	970,580	387,160	1,357,740	868,360	408,010	81,370

[1] These amounts represent the costs of enlargement of the collection and diversion system specifically for fish and wildlife purposes. It is shown as a specific cost because the allocation to this function is limited to the costs of these added facilities totaling $2,830,000 as described in report of the regional director for mitigation of losses.

TABLE III.—*Fryingpan-Arkansas project, cost allocation*

Item	Total	Municipal water	Irrigation	Power	Flood control	Fish and wildlife
Annual benefits	$9,317,000	$1,662,000	$4,355,000	$2,702,000	$598,000	.....
Less annual operation, maintenance, and replacement costs	1,313,000	412,000	59,000	842,000	0	0
Annual net benefits	8,004,000	1,250,000	4,296,000	1,860,000	598,000	.....
Justifiable investment	295,910,000	45,771,000	157,305,000	68,107,000	21,897,000	[1] $2,830,000
Alternative expenditure	184,161,000	33,575,000	81,097,000	42,148,000	27,341,000	.....
Alternative justifiable expenditure	181,547,000	33,575,000	81,097,000	42,148,000	21,897,000	2,830,000
Less specific costs	60,711,000	21,500,000	0	39,211,000	0	.....
Remainder	120,836,000	12,075,000	81,097,000	2,937,000	21,897,000	.....
Percent distribution	100.0	10.2	68.7	2.5	18.6	.....
Joint costs	112,187,000	11,154,000	75,128,000	2,734,000	20,341,000	.....
Specific costs	60,711,000	21,500,000	0	39,211,000	0	2,830,000
Allocation	172,898,000	32,654,000	75,128,000	41,945,000	20,341,000	2,830,000

[1] Incremental costs of features on western slope, as described in report of the regional director for mitigation of losses.

JUNE 2, 1953.

Fryingpan-Arkansas project, interest during construction

Breakdown of the interest during construction to the allocated use of the features:

Joint use	$4,691,000
Specific power	1,213,000
Specific municipal water	690,000
Total	6,594,000

The distribution of the joint interest during construction was made to the various functions by the same percentages that the functions share in the joint construction costs. This distribution is as follows:

Irrigation	$3,143,000
Power	117,000
Municipal water	464,000
Flood control	849,000
Fish and wildlife	118,000
Total	4,691,000

The total reimbursable amounts of interest during construction are:

Power	$1,213,000+117,000=$1,330,000
Municipal water	690,000+464,000= 1,154,000
Total	2,484,000

The nonreimbursable interest during construction is $4,110,000.

NOTE.—Interest is charged beginning with the dates expenditures are estimated to be made, using construction schedules as a guide.

Interest initially computed for joint purposes is reanalyzed—leaving costs allocated to flood-control, irrigation and fish and wildlife interest-free, but charging interest to power and municipal and industrial water.

TABLE IV.—*Fryingpan-Arkansas project, financial analysis, interest during construction*

Feature	Type[1]	Construction cost	Construction period, years	Interest 2½ percent
Replacement Reservoir, Aspen, 28,000 acre-feet	J	$8,102,000	4	$405,100
Sugar Loaf Reservoir enlargement, 117,000 acre-feet	J	7,248,000	3	271,800
Twin Lakes Reservoir enlargement, 260,000 acre-feet	J	10,222,000	4	511,100
Salida Afterbay Reservoir, 200 acre-feet	P	310,000	1	3,900
Pueblo Reservoir, 400,000 acre-feet	J	43,453,000	4	2,172,600
Main purification plant (Pueblo) (7,500,000 gallons)	M	7,148,000	2	178,700

See footnote at end of table, p. 81.

TABLE IV.—*Fryingpan-Arkansas project, financial analysis, interest during construction*—Continued

Feature	Type[1]	Construction cost	Construction period, years	Interest 2½ percent
Hunter Creek Diversion Dam	J	$48,000	1	$600
Hunter Creek Extension diversion works	J	15,000	1	200
Chapman Gulch Diversion Dam	J	54,000	1	700
Lime Creek Diversion Dam	J	30,000	1	400
Last Chance Diversion Dam	J	30,000	1	400
North Fork Diversion Dam	J	30,000	1	400
Ivanhoe Diversion Dam	J	30,000	1	400
Fryingpan River Diversion Dam	J	16,000	1	200
Snowden Diversion Dam	J	205,000	2	5,100
Wapaco Diversion Dam	P	228,000	2	5,700
Chalk Creek Diversion Dam	P	62,000	1	800
Oil Creek Diversion Dam	M	138,000	1	1,700
Main municipal pumping plant	M	1,470,000	3	55,100
Colorado Springs pumping plants	M	155,000	2	3,900
Hunter Creek, Aspen Canal, Q=200 cubic feet per second	J	240,000	1	3,000
Hunter Creek Extension Canal, Q=20–100 cubic feet per second	J	394,000	3	14,800
South Side collection conduit	J	9,209,000		
.01 Hunter Creek-Chapman tunnel	J	(2,578,000)	2	64,400
.02 Chapman-South Fork tunnel	J	(3,380,000)	2	84,500
.03 South Fork-Fryingpan siphon tunnel	J	(2,706,000)	2	67,600
.04 Fryingpan siphon	J	(545,000)	1	6,800
Northside collection conduit	J	21,006,000		
.01 Lime Creek Canal	J	(1,182,000)	3	44,300
.02 Last Chance-North Fork section	J	(2,952,000)	2	73,800
.03 North Fork-Ivanhoe Creek section	J	(11,674,000)	3	437,800
.04 Ivanhoe Creek-Fryingpan Siphon	J	(2,002,000)	2	50,000
.05 Fryingpan siphon-Fryingpan-Arkansas tunnel	J	(3,196,000)		
Fryingpan Arkansas Divide tunnel	J	10,095,000	3	378,600
Elbert power canal	P	1,795,000	3	67,300
Snowden Canal	J	587,000	2	14,700
Twin Lakes-Otero Canal	P	1,623,000	2	40,600
Otero-Wapaco Canal	P	2,188,000	3	82,000
Wapaco Diversion Canal	P	38,000	1	500
Wapaco Princeton Canal	P	2,466,000	3	92,500
Chalk Creek diversion canal	P	34,000	1	400
Princeton Pancho Canal	P	2,023,000	3	75,900
Pancho-Salida Canal	P	2,508,000	3	94,000
Pueblo municipal water supply conduit	M	1,735,000	2	43,400
Arkansas Valley municipal water supply conduit	M	10,631,000	3	398,700
Oil Creek-Brush Hollow Canal	M	223,000	3	8,400
Elbert powerplant, 8,700 kilowatts	P	1,137,000	3	42,600
Otero (Granite) powerplant, 19,200 kilowatts	P	2,711,000	3	101,700
Wapaco powerplant, 16,500 kilowatts	P	2,214,000	3	83,000
Princeton powerplant, 11,700 kilowatts	P	1,733,000	3	65,000
Pancho (Princeton) powerplant, 15,000 kilowatts	P	2,500,000	3	93,800
Salida powerplant, 22,700 kilowatts	P	2,908,000	3	109,000
Pueblo powerplant, 11,000 kilowatts	P	1,714,000	3	64,300
Dillon-Elbert, 51 miles	P	755,000	2	18,900
Elbert-Otero, 11 miles	P	127,000	1	1,600
Otero-Wapaco, 7 miles	P	104,000	1	1,300
Wapaco-Princeton, 15 miles	P	174,000	1	2,200
Princeton-Pancho, 7 miles	P	80,000	1	1,000
Pancho-Salida, 3 miles	P	35,000	1	400
Gunnison-Salida, 66 miles	P	1,020,000	2	25,500
Saguache-Salida, 47 miles	P	504,000	2	12,600
Salida-Pueblo, 97 miles	P	1,124,000	2	28,100
Pueblo-Colorado Springs, 44 miles	P	472,000	1	5,900
Colorado Springs, Limon, 73 miles	P	684,000	2	17,100
Leadville, 15,000 kilovolt-amperes	P	118,000	1	1,500
Salida, 5,000 kilovolt-amperes	P	139,000	1	1,700
Gunnison, 3,750 kilovolt-amperes	P	253,000	1	3,200
Saguache, 10,000 kilovolt-amperes	P	149,000	1	1,900
Canon City, 15,000 kilovolt-amperes	P	302,000	1	3,800
Pueblo, 25,000 kilovolt-amperes	P	205,000	1	2,600
Colorado Springs, 30,000 kilovolt-amperes	P	925,000	1	11,600
Elbert, 9,670 kilovolt-amperes	P	482,000	1	6,000
Otero, 21,330 kilovolt-amperes	P	558,000	1	7,000
Wapaco, 18,330 kilovolt-amperes	P	540,000	1	6,800
Princeton, 13,000 kilovolt-amperes	P	507,000	1	6,400
Pancho, 16,670 kilovolt-amperes	P	434,000	1	5,400
Salida, 25,220 kilovolt-amperes	P	770,000	1	9,600
Pueblo, 12,220 kilovolt-amperes	P	594,000	1	7,400
General communication system	J	105,000	2	2,600
General service equipment (25 percent construction facilities)	J	1,053,000	7	79,000
Gunnison maintenance shop	J	15,000	1	200
Total		172,898,000		6,593,500

[1] J=joint; P=power; M=municipal water.

TABLE V.—*Fryingpan-Arkansas project, revised financial study No. 8*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Power						Municipal and industrial water supply					Irrigation		Recapitulation	
Year of study	Net operating revenues	Repayable components of net power revenues		Investment repayment			Net revenues from municipal and industrial water supply	Repayment components of net revenues		Investment repayment of municipal and industrial water plant	Irrigation plant paid by municipal water revenues	Net revenues (including conservancy district tax)	Investment repayment, interest-free balance to be repaid	Net project revenues	Earned surplus
				Interest-bearing		Interest-free									
		Interest, 2½ percent	Excess over interest	Electric plant	Balance to be repaid	Irrigation plant paid by power revenues		Interest, 2½ percent	Excess over interest						
0				$21,553,000	$21,553,000	$25,472,000				$13,838,000	$6,738,000		$42,918,000		
1	$728,990	$538,825	$190,165	28,376,000	28,185,835	25,472,000	$591,430	$347,450	$243,980	13,654,020	6,738,000	$622,000	42,296,000	$1,942,420	
2	897,360	704,646	192,714	35,019,000	34,636,121	25,472,000	591,430	341,350	250,080	13,403,940	6,738,000	622,000	41,674,000	2,110,790	
3	1,356,750	865,903	490,847	39,317,000	38,443,274	25,472,000	591,430	335,098	256,332	13,147,608	6,738,000	622,000	41,052,000	2,570,180	
4	1,427,320	961,082	466,238	39,317,000	37,977,036	25,472,000	591,430	328,690	262,740	12,884,868	6,738,000	622,000	40,430,000	2,640,750	
5	1,427,320	949,426	477,894	39,317,000	37,499,142	25,472,000	591,430	322,122	269,308	16,880,560	6,738,000	622,000	39,808,000	2,640,750	
6	1,427,320	937,479	489,841	39,317,000	37,009,301	25,472,000	714,700	422,014	292,686	16,587,874	6,738,000	622,000	39,186,000	2,764,020	
7	1,427,320	925,233	502,087	39,317,000	36,507,214	25,472,000	714,700	414,697	300,003	16,287,871	6,738,000	622,000	38,564,000	2,764,020	
8	1,427,320	912,680	514,640	39,317,000	35,992,574	25,472,000	714,700	407,197	307,503	15,980,368	6,738,000	622,000	37,942,000	2,764,020	
9	1,427,320	899,814	527,506	43,275,000	39,423,068	25,472,000	714,700	399,509	315,191	15,665,177	6,738,000	622,000	37,320,000	2,764,020	
10	1,504,400	985,577	518,823	43,275,000	38,904,245	25,472,000	714,700	391,629	323,071	23,686,106	6,738,000	622,000	36,698,000	2,841,100	
11	1,504,400	972,606	531,794	43,275,000	38,372,451	25,472,000	899,140	592,153	306,987	28,757,119	6,738,000	622,000	36,076,000	3,025,540	
12	1,504,400	959,311	545,089	43,275,000	37,827,362	25,472,000	1,015,120	718,928	296,192	28,460,927	6,738,000	622,000	35,054,000	3,141,520	
13	1,504,400	945,683	558,717	43,275,000	37,268,645	25,472,000	1,015,120	711,523	303,597	30,060,330	6,738,000	622,000	34,832,000	3,141,520	
14	1,504,400	931,714	572,686	43,275,000	36,695,959	25,472,000	1,064,190	752,008	312,182	29,768,148	6,738,000	622,000	34,210,000	3,190,590	
15	1,504,400	917,396	587,004	43,275,000	36,108,955	25,472,000	1,064,190	744,203	319,987	29,448,161	6,738,000	622,000	33,588,000	3,190,590	
16	1,504,400	902,721	601,679	43,275,000	35,507,276	25,472,000	1,064,190	736,203	327,987	29,120,174	6,738,000	622,000	32,966,000	3,190,590	
17	1,504,400	887,679	616,721	43,275,000	34,890,555	25,472,000	1,064,190	728,002	336,188	28,783,986	6,738,000	622,000	32,344,000	3,190,590	
18	1,504,400	872,261	632,139	43,275,000	34,258,416	25,472,000	1,064,190	719,597	344,593	28,439,393	6,738,000	622,000	31,722,000	3,190,590	
19	1,504,400	856,457	647,943	43,275,000	33,610,473	25,472,000	1,064,190	710,982	353,208	28,086,185	6,738,000	622,000	31,100,000	3,190,590	
20	1,504,400	840,258	664,142	43,275,000	32,946,331	25,472,000	1,064,190	702,152	362,038	27,724,147	6,738,000	622,000	30,478,000	3,190,590	
21	1,504,400	823,654	680,746	43,275,000	32,265,585	25,472,000	1,064,190	693,101	371,089	27,353,058	6,738,000	622,000	29,856,000	3,190,590	
22	1,504,400	806,635	697,765	43,275,000	31,567,820	25,472,000	1,064,190	683,823	380,367	26,972,691	6,738,000	622,000	29,234,000	3,190,590	
23	1,504,400	789,190	715,210	43,275,000	30,852,610	25,472,000	1,064,190	674,313	389,877	26,582,814	6,738,000	622,000	28,612,000	3,190,590	
24	1,504,400	771,309	733,091	43,275,000	30,119,519	25,472,000	1,064,190	664,565	399,625	26,183,189	6,738,000	622,000	27,990,000	3,190,590	
25	1,504,400	752,981	751,419	43,275,000	29,368,100	25,472,000	1,064,190	654,574	409,616	25,773,573	6,738,000	622,000	27,368,000	3,190,590	
26	1,504,400	734,195	770,205	43,275,000	28,597,895	25,472,000	1,064,190	644,333	419,857	25,353,716	6,738,000	622,000	26,746,000	3,190,590	

27	1,504,400	714,939	789,461	43,275,000	27,808,434	25,472,000	1,064,190	633,836	430,354	24,923,362	6,738,000	622,000	26,124,000	3,190,590	
28	1,504,400	695,202	809,198	43,275,000	26,999,236	25,472,000	1,064,190	623,077	441,113	24,482,249	6,738,000	622,000	25,502,000	3,190,590	
29	1,504,400	674,972	829,428	43,275,000	26,169,808	25,472,000	1,064,190	612,048	452,142	24,030,107	6,738,000	622,000	24,880,000	3,190,590	
30	1,504,400	654,236	850,164	43,275,000	25,319,644	25,472,000	1,064,190	600,744	463,446	23,566,661	6,738,000	622,000	24,258,000	3,190,590	
31	1,504,400	632,981	871,419	43,275,000	24,448,225	25,472,000	1,064,190	589,158	475,032	23,091,629	6,738,000	622,000	23,636,000	3,190,590	
32	1,504,400	611,195	893,205	43,275,000	23,555,020	25,472,000	1,064,190	577,282	486,908	22,604,721	6,738,000	622,000	23,014,000	3,190,590	
33	1,504,400	588,864	915,536	43,275,000	22,639,484	25,472,000	1,064,190	565,109	499,081	22,105,640	6,738,000	622,000	22,392,000	3,190,590	
34	1,504,400	565,976	938,424	43,275,000	21,701,060	25,472,000	1,064,190	552,631	511,559	21,594,081	6,738,000	622,000	21,770,000	3,190,590	
35	1,504,400	542,515	961,885	43,275,000	20,739,175	25,472,000	1,064,190	539,842	524,348	21,069,733	6,738,000	622,000	21,148,000	3,190,590	
36	1,504,400	518,468	985,932	43,275,000	19,753,243	25,472,000	1,064,190	526,733	537,457	20,532,276	6,738,000	622,000	20,526,000	3,190,590	
37	1,504,400	493,820	1,010,580	43,275,000	18,742,663	25,472,000	1,064,190	513,296	550,894	19,981,382	6,738,000	622,000	19,904,000	3,190,590	
38	1,504,400	468,555	1,035,845	43,275,000	17,706,818	25,472,000	1,064,190	499,524	564,666	19,416,716	6,738,000	622,000	19,282,000	3,190,590	
39	1,504,400	442,658	1,061,742	43,275,000	16,645,076	25,472,000	1,064,190	485,407	578,783	18,837,933	6,738,000	622,000	18,660,000	3,190,590	
40	1,504,400	416,114	1,088,286	43,275,000	15,556,790	25,472,000	1,064,190	470,937	593,253	18,244,680	6,738,000	622,000	18,038,000	3,190,590	
41	1,504,400	388,906	1,115,494	43,275,000	14,441,296	25,472,000	1,064,190	456,105	608,085	17,636,595	6,738,000	622,000	17,416,000	3,190,590	
42	1,504,400	361,018	1,143,382	43,275,000	13,297,914	25,472,000	1,064,190	440,903	623,287	17,013,308	6,738,000	622,000	16,794,000	3,190,590	
43	1,504,400	332,433	1,171,967	43,275,000	12,125,947	25,472,000	1,064,190	425,321	638,869	16,374,439	6,738,000	622,000	16,172,000	3,190,590	
44	1,504,400	303,133	1,201,267	43,275,000	10,924,680	25,472,000	1,064,190	409,349	654,841	15,719,598	6,738,000	622,000	15,550,000	3,190,590	
45	1,504,400	273,101	1,231,301	43,275,000	9,693,380	25,472,000	1,064,190	392,978	671,212	15,048,386	6,738,000	622,000	14,928,000	3,190,590	
46	1,504,400	242,317	1,262,083	43,275,000	8,431,297	25,472,000	1,064,190	376,198	687,992	14,360,394	6,738,000	622,000	14,306,000	3,190,590	
47	1,504,400	210,765	1,293,635	43,275,000	7,137,662	25,472,000	1,064,190	358,998	705,192	13,655,202	6,738,000	622,000	13,684,000	3,190,590	
48	1,504,400	178,424	1,325,976	43,275,000	5,811,686	25,472,000	1,064,190	341,368	722,822	12,932,380	6,738,000	622,000	13,062,000	3,190,590	
49	1,504,400	145,274	1,359,126	43,275,000	4,452,560	25,472,000	1,064,190	323,296	740,894	12,191,486	6,738,000	622,000	12,440,000	3,190,590	
50	1,504,400	111,295	1,393,105	43,275,000	3,059,455	25,472,000	1,064,190	304,773	759,417	11,432,069	6,738,000	622,000	11,818,000	3,190,590	
51	1,504,400	76,467	1,427,933	43,275,000	1,631,522	25,472,000	1,064,190	285,788	778,402	10,653,667	6,738,000	622,000	11,196,000	3,190,590	
52	1,504,400	40,769	1,463,631	43,275,000	167,891	25,472,000	1,064,190	266,328	797,862	9,855,805	6,738,000	622,000	10,574,000	3,190,590	
53	1,504,400	4,197	167,891	43,275,000	0	24,139,688	1,064,190	246,381	817,809	9,037,996	6,738,000	622,000	9,952,000	3,190,590	
54	1,504,400			43,275,000		22,635,288	1,064,190	225,936	838,254	8,199,742	6,738,000	622,000	9,330,000	3,190,590	
55	1,504,400			43,275,000		21,130,888	1,064,190	204,980	859,210	7,340,532	6,738,000	622,000	8,708,000	3,190,590	
56	1,504,400			43,275,000		19,626,488	1,064,190	183,499	880,691	6,459,841	6,738,000	622,000	8,086,000	3,190,590	
57	1,504,400			43,275,000		18,122,088	1,064,190	161,481	902,709	5,557,132	6,738,000	622,000	7,464,000	3,190,590	
58	1,504,400			43,275,000		16,617,688	1,064,190	138,913	925,277	4,631,855	6,738,000	622,000	6,842,000	3,190,590	
59	1,504,400			43,275,000		15,113,288	1,064,190	115,781	948,409	3,683,446	6,738,000	622,000	6,220,000	3,190,590	
60	1,504,400			43,275,000		13,608,888	1,064,190	92,071	972,119	2,711,327	6,738,000	622,000	5,598,000	3,190,590	
61	1,504,400			43,275,000		12,104,488	1,064,190	67,768	996,422	1,714,905	6,738,000	622,000	4,976,000	3,190,590	
62	1,504,400			43,275,000		10,600,088	1,064,190	42,858	1,021,332	693,573	6,738,000	622,000	4,354,000	3,190,590	
63	1,504,400			43,275,000		9,095,688	1,064,190	17,324	693,573	0	6,384,707	622,000	3,732,000	3,190,590	
64	1,504,400			43,275,000		7,591,288	1,064,190				5,320,517	622,000	3,110,000	3,190,590	
65	1,504,400			43,275,000		6,086,888	1,064,190				4,256,327	622,000	2,488,000	3,190,590	
66	1,504,400			43,275,000		4,582,488	1,064,190				3,192,137	622,000	1,866,000	3,190,590	
67	1,504,400			43,275,000		3,078,088	1,064,190				2,127,947	622,000	1,244,000	3,190,590	
68	1,504,400			43,275,000		1,573,688	1,064,190				1,063,757	622,000	622,000	3,190,590	
69	1,504,400			43,275,000		69,288	1,063,757				0	622,000	0	3,190,157	
70	1,504,400			43,275,000		0								1,504,400	$1,435,112
Total	103,315,420	33,133,308	43,275,000	43,275,000	0	0	69,054,037	28,508,237	33,808,030	0	0	42,918,000	0	215,287,657	1,435,112

The report for the Fryingpan-Arkansas project was prepared in the regional office better than 2 years ago; on October 19, 1951, the former Secretary of the Interior, Mr. Chapman, submitted the report to the Bureau of the Budget. By letter of January 27, 1953, Budget Director Dodge called this report to the attention of the new administration and the Department of the Interior and asked if it conformed to the present program of the Department.

On April 30, 1953, the Department responded to Mr. Dodge's inquiry, stating that it made no modification in the plan of development. However,

> The recommendations in the report are hereby modified to recommend instead of application of the so-called interest component, as heretofore contemplated, the return of that part of construction costs of the project which is allocated to irrigation and assigned to be repaid from net power and municipal water revenues subsequent to the repayment of the commercial power and water investments.

Mr. ASPINALL. Mr. Aandahl, is that the Collbran formula?

Committee note: The so-called Collbran formula is as follows:

EXCERPT FROM ACT OF JULY 3, 1952

COLLBRAN PROJECT

That, notwithstanding any provision of law to the contrary, net revenues derived from the sale of commercial power and from the furnishing of water for municipal, domestic, and industrial use shall be applied, first, to the amortization with interest, of those portions of the actual cost of the construction of the project which are allocated, respectively, to commercial power and to municipal, domestic, and industrial water supply; and, thereafter, shall be applied to amortization of that portion of the cost allocated to irrigation which is beyond the ability of the irrigation water users to repay within the period specified above. Amortization of that portion of the construction cost allocated to commercial power shall include interest on the unamortized balance thereof at 3 percent per annum. Repayment of that portion of the actual cost of constructing the project which is allocated to municipal, domestic, and industrial water supply and of interest on the unamortized balance thereof at a rate (which rate shall be certified by the Secretary of the Treasury) equal to the average rate paid by the United States on its long-term loans outstanding at the time the repayment contract is negotiated minus the amount of such net revenues as may be derived from temporary water supply contracts or from other sources prior to the close of the repayment period, shall be assured by a contract or contracts satisfactory to the Secretary, the term of which shall not exceed 50 years from the date of completion of the municipal and industrial water supply features of the project as determined by the Secretary.

Mr. AANDAHL. It is a modified Collbran formula and fundamentally provides that the investment in municipal water and power facilities with interest, shall be wholly liquidated before any of those revenues are used as a benefit to irrigation. But after the 50-year period when those repayments have been made, then the revenue from water and power may be used to retire portions of the irrigation investment.

Mr. ASPINALL. May I ask this question? What if the allocated costs and interest are paid out before the 50-year period, or if there are surpluses annually from such receipts, where are those surpluses to be credited?

Mr. AANDAHL. I do not know of any specific determination having been made of what should be done under those circumstances. I would be my opinion that those revenues could be used either to accelerate the repayment of the power and municipal water investment or they could be used toward the repayment of the irrigation investment. Personally I think I would be inclined to favor accelerating the payment for the power and municipal water investments.

Mr. ASPINALL. Is not that the modification of the Collbran formula that is implied?

Mr. AANDAHL. I do not know that that is specifically spelled out in this communication. I think it is an open question as far as this communication is concerned.

May I ask Mr. Tomlinson here if he has an opinion on that particular question?

Mr. TOMLINSON. The principal difference is that the interest rate on both the power and municipal water investments, in accord with the Bureau of the Budget's recent determination, at the cost of present long-term money, which is approximately 2½ percent according to the Bureau of the Budget's latest communication that we have on this subject. And the water users—the power and municipal water—would pay out within 50 years.

Actually, the report is set up to show them paying out within approximately 50 years after the last power unit or the last municipal water unit feature was completed. Any revenues after that would go to help irrigators.

Another modification is that the irrigators would continue to pay until the entire project was paid out, which is estimated in the present revised report as requiring 69 years from the time water was first available. In other words, the irrigators would not pay for 40 or 50 years and then wait for power or municipal water to pick up the rest of the check.

Mr. ASPINALL. Since the Bureau of the Budget states this policy, are you referring to Circular A–47?

Mr. AANDAHL. A–47; yes, sir.

Mr. ASPINALL. I am not going to belabor this proposition here at this time because we wish to get through with the witnesses, but we have some very definite problems on ratemaking coming into this matter at this place, and I think we will have to thrash them over before we make our decision.

Mr. D'EWART. And policy questions. This use of interest component establishes a new precedent, and the 69 years establishes a new precedent.

Mr. ENGLE. Have we ever had the question settled as to whether they can legally use it or not?

Mr. HARRISON. Go ahead.

Mr. AANDAHL. Was that a question?

Mr. HARRISON. Did you ask that as a question?

Mr. ENGLE. Yes.

Mr. AANDAHL. Your question is, Has it been determined whether or not the interest component can legally be used?

Mr. ENGLE. Yes.

Mr. AANDAHL. The present administration has not resolved that question. It has been posed to us and we have made some checkup on it but we do not have an answer at the present time.

Mr. ENGLE. How can you predicate it upon the use of the interest component, the legality of which has not yet been determined?

Mr. AANDAHL. In this report we are not recommending the use of the interest component on the Fryingpan-Arkansas project.

Mr. ENGLE. You say you are not recommending it?

Mr. AANDAHL. We are not recommending the use of the interest component. The last sentence of this paragraph from which I have

just been reading: "We do not favor the use of the so-called interest component as an aid in paying out the irrigation costs of this project."

That is the interest component. As long as there is an unrepaid portion of the power and municipal water investment, the interest will be paid into the Federal Treasury—the interest that is due on that unpaid portion of the investment. And the use of the revenues from water and power to aid irrigation is deferred until the power and municipal investment is repaid with interest. So this report is not recommending the use of the interest component, although it does recommend the use of municipal water and power revenues after the 50-year period, which is after the investment in power and municipal water has been completely liquidated with interest.

Mr. ASPINALL. As I understand it, your engineering advisers have advised you that this project is feasible under those circumstances?

Mr. AANDAHL. Yes, and that is the basis on which this report is made.

Mr. ENGLE. Feasible on a 69-year payout?

Mr. AANDAHL. Yes. As a matter of policy, we are in this instance not concerned about the legality of the use of the interest component because we are just not using it.

Mr. ENGLE. Let me ask you this question, Mr. Aandahl: What is the difference between using the interest component and paying out the 50 years and stretching the project to 70 years and piling the interest and revenues and everything else on in the last 19 years? It seems to me you are just cutting off the dog's tail in a different way, just taking a little more time. In other words, you can get exactly the same objective by piling the whole works in for 50 years, or you can take 69 years—and this instance pretty close to 70—and juggle the thing around and end up with a 69-year payout period, during the last 19 years of which you commit all of the power revenues, municipal water revenues, and all interest to the liquidation of irrigation features. It boils down in the final analysis, does it not, as to how much the irrigators are actually paying?

Mr. AANDAHL. There is one significant difference in the two plans, and that is that under the proposed plan the revenue from municipal water and from power will be obligated to go into the United States Treasury for the longer period.

If you have the project completely paid off at the end of 50 years, as you would by using the interest component, then from there on the Federal Treasury has no further claim upon those revenues in the nature of repaying an obligation. And the result might be reduced power rates and reduced rates for municipal water in the area. But by setting it up this way, you obligate those revenues for a longer period, during all of which they will be going to the Federal Treasury. So I feel there is a significant difference that is of definite advantage to the Government of the United States.

Mr. DAWSON. In addition to avoiding this question of the use of the interest component, which you questioned can be legally done. They are completely avoiding that under this proposal.

Mr. HARRISON. Mr. Saylor.

Mr. SAYLOR. Am I correct, then, in assuming that what you are doing in this new formula is to put off the final payment of the non-interest-bearing features of the project until after the interest-bearing features are paid?

Mr. AANDAHL. Insofar as they might otherwise be paid by the use of the interest component.

Mr. SAYLOR. I am interested in just using round figures and not bothering about the cents. In 70 years from today, if today you invested $75 in a Government bond and you compounded it every 10 years you would have a cost of $557 to pay back your $75. I am a little suspicious of that putting off. It is a simple proposition: At the end of 10 years you get back $100, the next time it is $133, and $177, and $256, and $314, $448, $557.

Mr. PILLION. That type of mathematics does not apply to the Federal Government, Mr. Saylor.

Mr. AANDAHL. I might say that in the report from the Bureau of the Budget, which I will refer to in just a moment, the particular circumstances that you described is spelled out in this report, and we propose to lay that before the committee in order that you may fully evaluate what is involved in that type of thing.

Mr. D'EWART. May I ask one more question, Governor? Will there be any unamortized principal at the end of 50 years to earn interest?

Mr. AANDAHL. There will be unamortized principal as far as irrigation investment is concerned. There will be none as far as power and municipal water.

Mr. D'EWART. But the irrigators will not be able to repay all the investment, and therefore you are using other funds to help it out?

Mr. AANDAHL. Yes.

Mr. D'EWART. Therefore, actually there will be no interest on any unamortized balance after the end of 50 years. You do not get interest on the investment on irrigation.

Mr. AANDAHL. Under this plan there will be no interest after the period during which power and municipal water are repaid in full.

Mr. D'EWART. That is the way it would appear to me. That is why you are not using the interest component, and that is the only reason I see why you are not using it.

Mr. SAYLOR. But——

Mr. D'EWART. There would not be any interest after 50 years.

Mr. SAYLOR. There would not be any interest, but do not lose sight of the fact that it is going to cost the taxpayers of this country interest, because the Government has to pay interest. Whether or not the Bureau of Reclamation in their figures are considering interest on this feature, Government bonds do bear interest.

Mr. AANDAHL. That is recognized as a definite aid to irrigation, and you will find that it is spelled out quite completely in this letter that is submitted by the Bureau of the Budget.

There is one other rather significant difference in the recommendations that were made on April 30 over what was involved in the original report, and that is that interest will be calculated during construction on the investment in power and municpal water. And I believe it is estimated that that interest will amount to about $2,500,000. And while an appropriation is not needed for that, it will be a part of the repayment schedule.

There are several other minor difference in the report that was sent to the Bureau of the Budget on April 30 and which is now presented to this Committee, but I think that for the time being we can let those pass and move over to the letter that was received from the Bureau

of the Budget on June 8. Perhaps it would be well if I could make this personal observation at this time.

The water policy of the Nation is going to be worked out certainly by the executive branch and the Congress. Within the executive branch itself there are a number of questions that have not been fully resolved, and for that reason I cannot come in here with a firm recommendation from the executive department on each and every one of these questions that arise. This letter that I am now calling to your attention of June 8 from the Bureau of the Budget indicates that there are questions that are not resolved as between the Department of the Interior and the Bureau of the Budget. And we are submitting them to you in that open condition so that the Congress and the executive branch may jointly weigh these problems. I think the comments that the members of this committee make, and the observations that the Congress makes, generally is going to be most helpful in resolving the power policy that we used as we go into the future.

Mr. ASPINALL. That is right, Governor, but what it does is to make this project that is now before us a guinea pig for a lot of these policy-determining resolutions that we must make.

Mr. AANDAHL. That is correct. And it is going to continue to be the case as we go into quite a number of other projects because many of these problems are pretty heavy problems, and it would be very presumptious to try to come up all at once and say, "This is the answer."

Mr. ASPINALL. That is right. But on the other hand, we have involved in the Fryingpan-Arkansas project practically every problem that must be resolved in multiple-purpose projects for which there is irrigation and the other factors.

Mr. AANDAHL. I would say there are a number of them. I am also aware of some problems that do not appear too strongly in this particular project.

With that thought in mind, let us look at this letter of June 8th from the Bureau of the Budget. After 2 or 3 paragraphs of preliminary factual information, the fourth paragraph enters into a consideration of the 69-year period for total repayment, and the Bureau of the Budget questions the advisability of approving a project that requires more than 50 years for repayment.

In the Department of the Interior we are inclined to think that we may recognize a period that is greater than 50 years, particularly with respect to some of the benefits that are involved in the project. And in this particular project, it applies specifically to the benefits to irrigation, the investment in which benefits will not be repaid during the 50-year period.

It is in the analysis of the 69-year period that the Bureau of the Budget in the fourth paragraph on page 2 calls attention to what the interest assistance to irrigation amounts to over the 69-year period. And you will note that it is a sizable sum of money.

Mr. HOSMER. How much is that?

Mr. AANDAHL. The figure here—and I will read from the letter so you have it exactly as presented by the Bureau of the Budget—

> in the case of the Fryingpan–Arkansas project the average annual interest cost on the irrigation investment during the first 50 years would amount to about $1,500,000 on the basis of simple interest at 2½ percent.

Mr. HOSMER. That is per year.

Mr. AANDAHL. That is the annual cost.

Mr. HOSMER. For 50 years?

Mr. AANDAHL. For 50 years.

Another question that has been raised is indicated in the next paragraph where attention is called to two communications that have come from the Department of Agriculture. The first communication was withdrawn by the Department of Agriculture after conference and a new communication submitted. Neither of those communications indicates any analysis of the Department of Agriculture which might question the ability of the water users to make the payments that are stipulated in the report.

I would like to conclude with the general statement that after evaluating the information that is presented in these two communications, I feel that the Fryingpan-Arkansas project is worthy of recognition and I would like to encourage approval of legislation that would authorize its construction.

Mr. HARRISON. Mr. D'Ewart, any questions?

Mr. D'EWART. Not at the moment.

Mr. HARRISON. Mr. Saylor?

Mr. SAYLOR. I am interested in several things that have come to my attention in this letter, because yesterday afternoon I directed a letter to the Secretary of the Interior asking for certain relevant matters that have not appeared so far in Senate Document 106. Among them I asked for the report of the various Departments. Can you tell us, or do you know, Governor, why the Bureau of the Budget has submitted their figures indicating only simple interest.

Mr. AANDAHL. I could not answer that question. I have visited with the staff members of the Bureau of the Budget, and we have discussed these matters, but the reason for the use of simple interest did not become a part of that discussion and I have no answer to your question.

Mr. SAYLOR. It is very evident from this letter that if the water users are willing to pay this price of better than $5 an acre-foot—and the Bureau of the Budget calls attention to the fact that there is no evidence in the report indicating the willingness of the irrigators to repay the proposed charges for an average annual supplemental water supply of about one-half acre-foot——

Mr. AANDAHL. It is my understanding that the outside witnesses include representatives of the water users, and the committee will be able to hear from them directly. I have no information other than that which is in the report.

Mr. SAYLOR. One other question. As I looked at the revised figures which were presented to us, there was a considerable difference in the percentage increase. Do you know, Governor, why the variation?

Mr. AANDAHL. Mr. Tomlinson is familiar with that analysis and I will ask him to answer, with your permission.

Mr. SAYLOR. Yes.

Mr. TOMLINSON. Yes, Mr. Saylor, the increase in the revenues from the irrigation portion of the project came about from three different sources. First, the project water rates were reanalyzed. The report previously submitted was based on 1939 to 1944 price levels. And they have raised that rate from $3.60 per acre-foot to $5.40 per acre-

foot, and that brings in an increased revenue per year of about $102,000. The Twin Lakes service rate has been increased from $2 to $3, and that brings an increase of about $12,500, annually. Second, the regulation of the winter water, which is one of the principal beneficial purposes served by this project, which was described in the basic report but was not price-tagged because 4 years ago, when the report was prepared they did not have the financial figures worked out to the point where they felt safe in putting a price tag, they have put a price tag on now of $2.25 per acre-foot. There is 74,000 acre-feet involved, approximately, and that would bring in a new revenue of around $166,500, annually.

The third and last change was caused by the ad valorem tax of the conservancy district. As I understand it, the entire State, or at least, part of the State, has had a new assessment. The assessments of the district has increased from $132 million to nearly $200 million, and the ad valorem tax would now bring in about $60,000 more.

These all add up to approximately an increase of $340,000 or $350,000, which would bring in yearly revenues of $622,000 per year.

Mr. SAYLOR. Have these new figures which you have presented to us today been submitted to Governor Thornton of Colorado?

Mr. TOMLINSON. I do not think they have been submitted to the Governor. I do not have positive word myself. I am sure Mr. Powell, present from the area, who will be on as the next witness, or the local witnesses, could tell you specifically. I have no information, though, to the effect they have been submitted to the State.

Mr. SAYLOR. Now the reason is because some of the features which you have commented on and given the committee are specifically commented on by the Governor in his analysis which was submitted to the Bureau of Reclamation on August 7, 1951. And he seriously questions whether or not there is any justification going as high as those original figures did.

That being the case, since there has been a material increase in the costs, I believe it would be very advisable to have it submitted to the Governor now for his comments on these new figures.

I notice in the figures submitted showing the total cost of the project that the original outlay, am I correct, was $172,898,000?

Mr. TOMLINSON. That is the present estimate, yes, of the original investment.

Mr. SAYLOR. The present estimate?

Mr. TOMLINSON. Yes.

Mr. SAYLOR. What was the former estimate?

Mr. TOMLINSON. I do not have those figures right before me but approximately $147 million.

Mr. SAYLOR. That is correct, $147,440,000. Now of that amount $59,930,000 was allocated to irrigation?

Mr. TOMLINSON. That is right.

Mr. SAYLOR. Under your new figures $75,128,000 are allocated to irrigation.

Mr. TOMLINSON. Yes, sir.

Mr. SAYLOR. The reason I am asking these questions, percentage-wise there is a difference. In other words, there was not any uniform system used, and I would like to know what features went into figuring your increase from $59,930,000 to $75,128,000.

Mr. TOMLINSON. I will be glad to answer that, Mr. Saylor.

In allocating the costs of this particular project a commonly used and, I might say, well-accepted method of allocation was used, namely, the alternative justifiable expenditure method. And the way they make the allocations, roughly, is this:

For each of the purposes served, such as municipal water, irrigation, and power and flood control, you work out two factors. One, you take the annual benefits and capitalize them. And on the other hand, you work out a single-purpose development which would provide the same benefits and price-tag. The lessor of those two is the limiting value, in project formulation, that you can invest in each of the purposes.

When you come to allocating, first, you charge any specific costs, such as in a powerplant would be charged the turbines, the generators, and so forth. Take out all of the specific costs and subtract them from the project cost. The remainder is what is called joint costs.

The joint costs then are divided between the different purposes on the basis of the lower of those two items I previously mentioned—either the capitalized benefits or the cost of a single-purpose development to provide the same benefits. So whenever the costs change any appreciable amount, especially joint costs, they have to be reallocated under this method. And I think it is a very supportable and justifiable method, and I do not think any economist who goes into it will find any serious quarrel with what is done in this case.

Mr. SAYLOR. Will you tell us what items went into irrigation which increased it from $59 million to $75 million?

Mr. TOMLINSON. The joint costs which were allocated by this formula. Mr. Powell has a detailed item-by-item analysis of the costs, dividing those into municipal, power, irrigation, and joint costs, and showing the increases item by item and the functions involved.

Mr. SAYLOR. In other words, he has that information and he will be available?

Mr. TOMLINSON. You requested it, and he worked it up last night; yes, sir. However, I would like to point out—I do not like to dodge the question—there is a big item of joint costs which have to be allocated by this formula which is attached to the Secretary's revised report. I do not think you have a copy of that particular document, but we can certainly make it available to you if you would like it. A copy was made available to the committee here this morning.

(COMMITTEE NOTE: A copy of the table referred to appears as table III attached to Secretary McKay's letter to the President, dated April 30, 1953. See p. 80.)

Mr. SAYLOR. You can understand that we would like to have that explanation, because here the next item of municipal water increased only from $29,552,000 to $32,654,000.

Mr. TOMLINSON. The main difference was that the joint costs in the case or irrigation made up the allocation to irrigation; whereas the municipal water allocation is different. I will explain the municipal water allocation.

Annual benefits from municipal water are $1,662,000. You take off the O. M. and R. and that leaves annual net benefits of a million and a quarter. The justifiable investment then, based on capitalizing that, would be $45 million and a fraction. The alternative expenditure for a single-purpose scheme to bring in the same municipal water bene-

fits would be $33½ million. So the lesser of those two, which is called the alternative justifiable expenditure, would be $33½ million. However, of the $33½ million you would be justified in spending, you have certain costs of $21,500,000, that you would have to spend in specific works, pipelines, conduits, treatment plant, or whatever is involved, leaving a remainder of $12,075,000 which could be used in splitting up the joint costs. I might add that you have a total joint cost to be split up of $112 million, and of those joint costs you have $12 million remainder for municipal water, $81 million for irrigation, nearly $3 million for power, and nearly $22 million for flood control. And they all add up to $120 million.

Actually the money that would have to be invested in the joint costs is $112 million. So you have a savings there of about $8 million by virtue of building 1 multiple-purpose project rather than 4 separate single-purpose projects.

This savings of $8 million is proportioned among the various purposes in the same percentage as the remaining costs, after specific costs were subtracted, bear to each other. And in that case, 10.2 percent of the joint costs would be allocated to municipal water; 68.7 percent of the joint costs would be allocated to irrigation; 2.5 for power; and 8.6 to flood control.

Mr. SAYLOR. Now in your original figures of $29,522,000 allocated to municipal water, it was estimated according to your original report that it would be returned in 40 years with interest at 2 percent.

Mr. TOMLINSON. Yes, sir.

Mr. SAYLOR. Am I correct in understanding that the new figure of $32,654,000 now allocated to municipal water will be returned in 50 years with interest at 2½ percent?

Mr. TOMLINSON. That is right, 50 years after the last unit is completed. Each separable part would pay out within 50 years from the time it goes into operation. In other words, you do not build the whole works the first year. I think it stretches out over 13 years. It would pay out within 50 years after the last part of the conduit went into operation, 13 years from the start of the project.

Mr. SAYLOR. The next item which is a large item here is power. Under your original project, you had $40,032,000, and under your new allocation you have $41,945,000.

Mr. TOMLINSON. Yes, sir.

Mr. SAYLOR. Your original power was figured to be repaid in 50 years with interest at 3 percent. What interest rate is figured on your new set of figures?

Mr. TOMLINSON. The revised table has 2½ percent for both power and municipal water, and a 50-year payment. I think the installations of the power units would be spread out over 9 years. So the final power payout would be within 50 years after the last one came in.

Mr. SAYLOR. There is about 4-percent increase in your charges made to power and there is approximately a 28-percent increase in your charges made to irrigation. Will you explain that difference?

Mr. TOMLINSON. Principally because a large amount of the power investment is in these specific features such as turbines, generators, and so forth. I do not know why the costs have not gone up quite as much on those. The principal increase in this project, as you will see from the material which Mr. Powell presents, was in the joint costs; and the power features bear only a small percentage of the joint costs,

because of the two limiting items which I mentioned before—the justifiable investment, which is the capitalized benefits, and the alternative expenditure which in this case controls, that is, the cost of a single-purpose scheme.

Mr. SAYLOR. Now your nonreimbursable items. In your original project, you had $15,777,000 allocated to flood control, and under your new figures $20,341,000 allocated to flood control. That is an increase of 33⅓ percent, roughly.

Mr. TOMLINSON. It is on the same basis. There are no specific features for flood control. The same dam, reservoir, and so forth, are all joint cost, and flood control has to bear 18.6 percent of the joint costs in this particular analysis.

I might add that we had informal conferences with the corps, and while they had some question as to the period of years used in analysis, whether it be 50, 69, 100, or some other, they did not quarrel with the allocation of flood control.

I might add, also, that at the first, we had the same question you had, and the region will tell you we sent them several speed letters, "Please explain and send in details." They came in with what I thought was a very logical explanation. You will see it in table III attached to Secretary McKay's letter report dated April 30, 1953. We will be glad to furnish you a copy if you would like to see it.

Mr. SAYLOR. And then the same, in your original figures on Fish and Wildlife, you had $2,179,000 allocated to Fish and Wildlife. Under your new figures, it is $2,830,000.

Mr. TOMLINSON. That is the easiest one of all to explain. That allocation covers certain described separate structures, and the increase is just the increased cost in those particular works. There are no joint costs involved there, sir.

Mr. SAYLOR. That is all, Mr. Chairman.

Mr. HARRISON. Mr. Engle.

Mr. ENGLE. When you figured the power revenues, of course, power rates in the last 19 years after the interest bearing features have been paid off, what power rate does your schedule call for? Is it the same power rate as in the preceding 50 years?

Mr. AANDAHL. It is the same rate throughout the 69-year period.

I would further observe that that rate is not necessarily fixed as the rate that is actually going to be charged. The rate that is going to be charged will have to be determined after the construction is completed and the total investment is known.

Specifically, the rate that has been used in the calculation is a rate that is safe, and that we feel reasonably certain can be charged and collected in the area.

Mr. ENGLE. But it is correct to assume that for the purpose of our consideration of this project, the rate will be uniform for the 69 years?

Mr. AANDAHL. The observation that Mr. Tomlinson has added here is that the rate would be subject to economic conditions as they developed during the period. And there would not be a 69-year contract that would set the rate and carry it through the period.

Mr. ENGLE. I understand that.

Mr. AANDAHL. But in the calculations, the rate has been uniform throughout the period.

Mr. ENGLE. Sure. You have to project on one basis or another, and you have projected on the basis of the rate to be used.

Mr. AANDAHL. Yes.

Mr. ENGLE. This brings me to the question I want to ask, and that is—how does this business of paying the interest-bearing features as a bookkeeping matter help the Federal Government?

Let me explain my thinking on that. The project involves approximately $150 million in repayable items. That is roughly what it is. It may be a little more or a little less. That is the money that has to be repaid. To repay, there are three sources of revenue; power revenue, revenue from municipal water and irrigation payments.

Mr. D'EWART. And conservancy district tax.

Mr. ENGLE. And any additional taxes that may be put on top of it. They all go into the Treasury, into the Federal pot and I just cannot for the life of me figure out why this legerdemain bookkeeping business of saying, "We are going to pay the Federal power with interest out of the $150 million first, or simultaneously with the municipal water." When you have a sum of money that has to be paid, approximately half of it carries 2½ percent interest, and at the end of a certain period of time, you are supposed to come out with payments equal to the total amount due. What difference does it make whether you pay the irrigation costs off first and credit that first or credit something else? There is something there I cannot understand.

Mr. AANDAHL. I will have to repeat my previous answer, and that is that the only difference is under the proposed plan the revenue from power and municipal water after the end of the 50-year period are specifically pledged to the United States Treasury to continue going into the United States Treasury. If it is not done that way, if we use the interest component to retire the obligation for irrigation during the first 50 years, then at the end of the 50-year period the total obligation to the Government has been retired and the revenue from power and municipal is no longer obligated in that amount to the Government. It does not mean that administratively the revenue does not continue to go into the Treasury as a source of revenue, but there is no obligation for it. While if we set it up this way, we have a definite obligation that will continue for the full 69-year period. And that is the only difference.

Mr. ENGLE. Of course, Governor, that is why I asked you the first question I asked you, namely, whether or not the power rate was on a uniform basis. Because the first 50 years you have the interest component in the power rate, and the interest component is part of the rate represented by the rate necessary to pay the interest. So after you go for 50 years with the power rate, you go on for another 19 years with the same rate, and you say you are not using the interest component. If you do not lower the rate, the interest component is in there. And that is exactly the reason I asked you the question first, because if the rate remains uniform the interest component has to be in it, and as a consequence you are using the interest component. And I say that is what I cannot understand. It is just juggling the bookkeeping, and it is not actually disavowing or disaffirming the interest component. We might as well face up to the fact it is used and be done with it, it seems to me.

Mr. SAYLOR. Will the gentleman yield?

Mr. ENGLE. Let the Governor comment. Maybe I am wrong here, but I sure see the interest component in there the last 19 years unless you reduce that rate.

Mr. AANDAHL. There is not any question but that the interest component is in there. The only thing, under this arrangement, you have a continuing obligation to the Government which will mandate the continuation of the established rate.

I wonder if this statement would help a little bit. If, during the first 50-year period the interest component is used to retire irrigation investment, it then does not go into the Treasury as an earned interest credit.

Mr. ENGLE. But that is just a matter of bookkeeping.

Mr. AANDAHL. That is just a matter of bookkeeping. And it makes no difference at all except that under this other plan, you will have a specific obligation against that power and municipal revenue that will continue for the remaining 19 years. And if you do not have that continuing obligation, there is no reason why, after the end of 50 years, the power rate or the municipal water rate might be lowered and the continuing revenue would not then be coming into the Federal Treasury.

Mr. ENGLE. However you look at it, Governor, it still boils down to a bookkeeping entry. And unless the policy of the Department is to reduce the power rate when the interest component is no longer used, and therefore it should no longer be a part of the rate, then there has been no fundamental change for all practical purposes in the operations that have occurred heretofore. Now that is perfectly all right with me because I am for those operations. I think we should use the interest component. I claim it is just as good a measuring stick as you can get as to the amount of subsidies that ought to go from power revenues into irrigation.

Here is what I am afraid of: When you start tinkering around and using a lot of financial acrobatics to make it appear you are not using the interest component, you may end up some day out in the West seeking some other measuring stick that will be not half as satisfactory as the interest component. And the thing I would like to urge on this committee when we start thinking about it is whether or not we just go ahead and keep the measuring stick we have. It is a good one. It is a rule of thumb, it is not too good, but when we try to disclaim it with what I call financial legerdemain, you get into a field where you have no measuring stick at all, and I just hope we do not do that. That is my concern.

This formula you come up with, Governor, does precisely the thing we have been doing heretofore. It does not change it an iota. The interest component is in for the first 50 years and in for the next 19. There is not any question about it. But I just get unhappy when I see an effort to avoid for some reason this use of the interest component, which I know is in controversy. But nevertheless, the way to do is to face up to it. For my money it is just as good a measuring stick as you will ever get as to the extent of power subsidy that ought to go into this irrigation and reclamation project field.

Mr. HARRISON. Mr. D'Ewart?

Mr. D'EWART. I cannot wholly agree with my colleague from California. I agree that the rate is going to stay the same the last 19 years as the first 50, and largely it is a matter of bookkeeping, but

it does not follow that you can have an interest component where there is no unamortized principal on which to pay interest. That is the point I made a while ago.

Mr. ENGLE. My dear friend, if the rate is the same, what difference does it make?

Mr. D'EWART. I will agree it does not make much difference, but nevertheless it is difficult for me to see an interest component when there is no unamortized principal on which to pay interest.

Mr. ENGLE. I agree with you. It is a technical matter. But you just put the cart in front of the horse or the horse in front of the cart, whichever way you want to put it. The fact is you have $150 million that has to be repaid. About half of it, or about $73 million bears interest at 2½ percent, and that is the obligation. If you wrote it up in the form of notes you could stack them right up here, and on the other side you figure your income, and in 69 years they have to be equal. That is what it boils down to.

Any changes within the framework of the general proposition are simply bookkeeping changes. They do not affect the general problem at all. They do not change the end-obligation or the end-repayment period.

Mr. D'EWART. I would like to turn to another matter. There are several small powerplants in this project. Have there been any efforts to determine whether private capital is willing to build those small projects and relieve the Federal Government?

Mr. AANDAHL. I do not think there has been any effort to do that. I would like to comment, however, that just during the past week I was given a copy of a proposal that is going to be made to this committee by the Public Service Co. of Colorado, located at Denver, and the Southern Colorado Power Co. located at Pueblo, in which they will offer to take care of all transmission of power on a wheeling basis and construct all lines that will be needed for that purpose.

I would like to add that the Department of the Interior looks with favor on that type of arrangement. We have not studied the details; we cannot report on that. But we look with favor on that general principle.

Mr. D'EWART. Would you look with favor toward encouraging these companies to build these powerplants also?

Mr. AANDAHL. I would have to limit my agreement to that proposal to an arrangement under which the revenue that could be received from the power companies for the storage of flowing waters would give us the same repayment capacity that we have under the arrangements of the federally owned powerplants.

Mr. D'EWART. I would agree with that, and always the rate must be fair.

Mr. AANDAHL. Under those circumstances, personally I would have no objection.

Mr. D'EWART. I notice in the letter of June 8 several questions as to the availability of water, water rights, and so forth. "Irrigators who will have prior water rights in the Arkansas."

Another place. "Further, there is no evidence in the report indicating the willingness by irrigators to repay the proposed charges."

Another place. "Optimistic estimates of average water deliveries." And so forth.

Are you able to assure the committee that the water is available to service this project as planned, in view of these statements?

Mr. AANDAHL. My assurance must depend on the information that is reported by the Bureau of Reclamation, which indicates that there is adequate water for this purpose.

Mr. D'EWART. Why does the Bureau of the Budget then place all these doubts in their letter of June 8?

There is one upon the ability or willingness or capacity to repay. One expresses optimistic estimates of average water delivery.

Plans for municipal water supplies appear doubtful because of the high water rates, optimistic estimates of average water deliveries, and uncertainty of including all proposed facilities and functions in the ultimate plans.

Mr. AANDAHL. As I understand that statement, it is not a question of the availability of the water, it is a question of the willingness of the water users to accept the water and pay for it at the rates that are set up here in the report. I have no personal measure of the willingness of the water users to do that. It is my understanding that the field force has had at least informal contact with the water users out there and are of the opinion that they are willing to pay for the water. And it is also my understanding that water users will appear before this committee and will specifically make statements that will answer the questions you have in mind.

Mr. D'EWART. That statement applied to domestic water. Now it says in another place, "Furthermore, there is no evidence in the report indicating the willingness by the irrigators to repay the proposed charges."

Mr. AANDAHL. I can only make the same answer to that question that I did in connection with the question on municipal water.

Mr. D'EWART. There is grave doubts in the Bureau of the Budget as to the repayment of the contracts, I gather.

That is all.

Mr. HARRISON. Mr. Aspinall.

Mr. ASPINALL. Mr. Chairman, before we leave this question of the budget, I think it would be fair for all of us to know that, in effect, the budget has not approved of this project. It has sent up what might be called a "conditional approval," is that not right, setting forth certain procedures it thinks we should follow in making our final determination?

Mr. AANDAHL. I think it is correct to say that the report of the Bureau of the Budget is an in between position.

Mr. ASPINALL. Is it definitely in between?

Mr. AANDAHL. How is that?

Mr. ASPINALL. Is it definitely in between? Is it not in fact a conditional approval of the project?

Mr. AANDAHL. In visiting with the personnel of the Bureau of the Budget, I raised that exact question, and I indicated my first interpretation was similar to what you are now making. And they did call my attention to the second sentence of the last paragraph, in which they say: "There would be no objection to the transmittal of the report. And the report of the Secretary of the Interior is one that is favorable to the project.

Mr. ASPINALL. Yes, but, Governor, this is the thing that is in my mind: The bill, as drawn, refers to Senate Document 106, and the report from the Bureau of the Budget is different from the contents of

106. It is different in several respects relative to the conditions set forth from "E" to "K." Those conditions which must be met. That is the reason why I say it, in effect, amounts to a conditional approval.

Mr. AANDAHL. I think that is fully correct.

Mr. HARRISON. Mr. Saylor, do you want to ask a question?

Mr. SAYLOR. Yes.

Mr. Tomlinson, I have added some of these figures which you have given in regard to water and I come up here with 74,000 acre-feet. That is a new figure because heretofore we have had the figure of 69,200.

Mr. TOMLINSON. Yes. I see where you would come to that conclusion. There are two different ingredients here. The first item I gave you was in two parts. Where I said they would sell the project water that was imported to the irrigators at $5.40 per acre-foot. There is 56,700 acre-feet involved there.

Mr. SAYLOR. That is right.

Mr. TOMLINSON. I said also that Twin Lakes service at $3 an acre-foot covers 12,500 acre-feet there. Those two are 69,200. Then the next item I brought up, which was 74,000, was for reregulation of winter water, an entirely different source of water, which is all Arkansas River water. Reregulation is catching it when it is not needed, storing it, and releasing it when needed. It is just a handling service, you might say, covering an entirely different 74,000 acre-feet. It just so happens they are both in the neighborhood of 70,000.

Mr. SAYLOR. That explains it. I wondered what happened because yesterday they were very specific in saying there was only 69,200 acre-feet of water.

Mr. TOMLINSON. That is right.

Mr. HARRISON. Do other members of the committee wish to ask questions?

Mr. DAWSON. Just one question. I would like to ask Mr. Aandahl, the last sentence of the letter from the Bureau of the Budget states: "Our review indicates that further study of various aspects of the project might be warranted." So do I interpret your testimony to mean that you feel that enough study has been made, and that you are now prepared in behalf of the Department to say that the project should be approved?

Mr. AANDAHL. We recognize that there are still open questions, as indicated in this letter from the Bureau of the Budget. On the other hand, we do not feel that there is much that can be gained by going over the questions again. No matter how many times a project of this kind might be analyzed, there are bound to be some questions that are more or less open when you are dealing with a project that is not going to be completed for 10 years, and the use of which will be developing in the subsequent period. And we feel that the report is in shape for serious consideration at the present time.

Mr. DAWSON. And the studies which they might be referring to are the very studies we are making here at the present time in discussing these problems?

Mr. AANDAHL. Yes, sir.

Mr. HOSMER. Do you have any idea as to what the value of this irrigated land out there is that will be benefited?

Mr. AANDAHL. You mean the value per acre?

Mr. HOSMER. Yes.

Mr. AANDAHL. No, I do not. Do you, Mr. Tomlinson?

Mr. TOMLINSON. No. I would prefer to get that from the area engineer, Mr. Powell.

Mr. HOSMER. I say that for the reason my calculations indicate, from the 322,000 acres that exist there, the cost being $75 million, it will amount to about $225 per acre. There is an additional amount of interest of $1,500,000 a year for 50 years, amounting to another $75 million, which totals up to about $450 per acre for this surplus water. I think that is a factor to consider in your further study on how hard you want to press this project.

That is all.

Mr. HARRISON. The subcommittee stands adjourned until 2:30 this afternoon.

(Whereupon, at 12:00 noon the subcommittee adjourned to reconvene at 2:30 p. m. of the same day.)

AFTERNOON SESSION

(The subcommittee reconvened at 2:35 p. m.)

Mr. HARRISON. The committee will come to order.

Who will be your first witness, Mr. Chenoweth?

Mr. CHENOWETH. The first witness will be Mr. Ben Powell, Pueblo, Colo., area engineer for the Bureau of Reclamation.

Mr. HARRISON. Mr. Powell, if you will identify yourself for the record and proceed.

STATEMENT OF BEN F. POWELL, AREA ENGINEER, UPPER ARKANSAS RIVER AREA, PUEBLO, COLO.

Mr. POWELL. My name is Ben F. Powell. I am the area engineer for the Bureau of Reclamation for the upper Arkansas River area, stationed at Pueblo, Colo.

(Discussion was had outside the record.)

Mr. HARRISON. Proceed.

Mr. POWELL [indicating map]. This is the State of Colorado and this is the Arkansas Valley. It covers in Colorado 25,000 square miles or 16 million acres. The water production in that area for Colorado use amounts to exactly three-quarters of an inch per year over the entire area. I say that to give you some idea of the limited amount of water.

The project in brief is this: This is the Continental Divide at over 14,000 feet. These are the Roaring Fork and the Fryingpan Rivers going down the west slope. Here is Aspen. Here is the Aspen Reservoir. Here is the 6-mile transmountain tunnel.

Here are the drops for power plants, from elevation of 10,000 feet down to elevation of about 7,300 at Salida. We terminate the power system at this point (indicating), because from this point on it has been determined that it would be infeasible to develop power because of the terrain with the quantity of the water now available.

This is Pueblo here down at about 4,700 feet. Pueblo Reservoir with elevation of 4,902. Pueblo Reservoir is a job of 400,000 acre-feet.

Here is Sugarloaf Reservoir described yesterday. I will not go into it.

There are 6 power plants in this area and 1 at Pueblo Reservoir. The total installed capacity would be 104,800 kilowatts. The production would be about 500 million kilowatt-hours per year, of which we deem 400 million is firm power.

On the west slope, the collection system is almost entirely covered conduit with the exception of South Hunter Creek extension, which is an open ditch. The South Hunter Creek extension is for operation in the floodwater season.

The Aspen Reservoir here has been described. It is for replacement purposes. I will not go into that further unless there are some questions.

Mr. HARRISON. Any questions?

Mr. ASPINALL. No.

Mr. DAWSON. No.

Mr. POWELL. I will go on with these charts.

This chart which we have here illustrates the precipitation at Las Animas, Colo. That runs from 1868 to the present time. It is the longest record in the State, I understand.

This line here is the normal precipitation, and these shortages in lighter color, and the projection of the blue above the normal indicates the variations in precipitation. It is worthwhile to note that in 1915 right in here [indicating], we had about normal precipitation, very well distributed, very successful year as far as rainfall is concerned.

Mr. DAWSON. Where is Las Animas?

Mr. POWELL. Las Animas, sir, is right here [indicating] just above the John Martin Dam. It is about 100 miles west of the Kansas State line.

Mr. DAWSON. That is typical precipitation for that whole area?

Mr. POWELL. It is, sir. It is about the average precipitation. The precipitation at Pueblo is a little short of 12 inches. I think this is 12 and some fraction [indicating]. But it is fairly representative. It is about the average precipitation. Going to the mountains, you get up here and you get into other conditions, but Las Animas is the location where the climate is significant.

If that is all, I will pass to the next chart.

This is the effective seasonal irrigation requirements and the effective supply of irrigation water.

By "effective" I mean the water that is diverted to the land and used in crop production, not overdiversion, which is very minor anyway.

We have here the average supply. This blue is the water of the Arkansas River. You will notice that we have here the demand, the requirements. These demands will vary almost with the precipitation and the temperature.

Here in 1911 we have a hot summer and demand which amounts to over 4½ feet of water.

We have here, as I said before, in 1915 a demand almost entirely satisfied by the natural waters.

We have here in 1934 a shortage which was very damaging. It ran as high as 84 percent shortage; in other words, about 16 percent so far as water per farm was concerned, which was approximately nothing.

On this chart, the yellow at the top, and the top of all these bars is the amount of water required per acre in feet of depth. It averages about 3 feet at the headgate to grow a crop.

Mr. DAWSON. You mean it takes 3 acre-feet?

Mr. POWELL. Three acre-feet per each acre, sir.

Mr. DAWSON. To grow a crop?

Mr. POWELL. To grow a crop. Now it takes just about the same amount of water in Illinois or Indiana at that latitude. It takes just about that much water.

Mr. DAWSON. We use about an acre-foot in my section of Utah.

Mr. POWELL. The actual demand is 1.56, sir, and the additional amount is the loss between the headgate and the crop. And a lot of that is return flow.

As I say, the blue is the supply. Coming up, each one of these marks, and you have a cross-hatched area here, and that illustrates diagrammatically the amount of water which formerly was used in the wintertime for winter irrigation. That is the 74,000 acre-feet of water spoken of this morning which would be converted from winter to summer use. Is that clear?

Now the red again. Coming up the scale is water furnished by the project in imported water and captured floodwater, not otherwise obligated to other water-right owners or other appropriators.

See it is pretty heavy here [indicating]. This chart between here and this point, out of 20 years there are about 17 with almost a full supply. That leaves very few years that this project would not, up to the year 1931, be very effective.

Then we hit this 10 years of drought. And the top again of these yellow piles here is the extent of the demand. The yellow indicates the residual shortage. Please note that we come into this point and we carry these red supplies in here from storage back in this period. That is not indicated here, but it amounts to 175,000 acre-feet.

What this does is reduce the shortage on the land from about 12 inches to the acre to about half a foot, 340,000 to 155,000 acre-feet of water on 322,000 acres.

I think unless there are some questions that covers that chart.

We have here illustrated at present-day prices the present crop sales. Below here we have crop losses because of water shortages. Crop sales, $15,565,000 yearly. Crop losses, $4,612,000. And by the report we show that with the water contemplated in this project, supplemental water, which amounts to six-tenths of a foot of water per acre on the average, we will be able to prevent a loss of $2,508,000.

We have in this next chart livestock production at the present time at the present prices, $11,806,000. We have losses due to water shortage of $2,134,000, and indicated recovery of these losses of $1,161,000.

Mr. ASPINALL. Just a minute. That is in addition to farm crop losses?

Mr. POWELL. That is right, sir.

Mr. ASPINALL. You figure that from the poundage in the cattle? Is that the way you are figuring it?

Mr. POWELL. Just figured on poundage and lack of feed for cattle.

Mr. ASPINALL. But you have your feed, as I presume, included within the former chart?

Mr. POWELL. This is production after the cost of the feed is deducted. It is true it is additional.

Mr. DAWSON. Are these all of the items that go into your figures at which you arrive at the ratio of benefit to cost?

Mr. POWELL. Yes, sir.

Now this is a composite of the two prior charts, $26,652,000. Losses of $6,747,000 and recovery of $3,669,000.

Here we have the population growth chart. This chart is produced from data compiled by Bureau of Business Research, University of Colorado, and the date is May 1953. And that later data is more authentic than the prediction in the report which was May 1949. This brings the data up to date and then makes projections according to the best authority we could obtain.

Mr. DAWSON. It would appear from your chart there that your population graph is going up a little faster than it has in the past, would it not?

Mr. POWELL. That is right, sir. There are several factors in that.

Since the end of this drought period here, our water supply has been a little better. And then we have had a natural growth here because of increased industrialization in the area.

Does that answer your question, sir?

Mr. DAWSON. Yes.

Mr. POWELL. We have here the dependable capacity requirements and source of power supply. The combined market area. And that area for market purposes is Colorado east of the Continental Divide and includes Denver. It extends outside the Arkansas Valley, but it is for analysis purposes the area to which power could be effectively delivered. We start in here. Here [indicating] we have the Colorado-Big Thompson project in green. It shows a dependable power supply of approximately 100,000 kilowatts.

Here we have in blue the available from utilities. This is in 1948. Minus retirements, plus scheduled additions. That comes from data of the Federal Power Commission and other sources.

This yellow is the deficiency, and in red we have the projected accomplishment of the Fryingpan-Arkansas project in the amount of some 93,000 kilowatts of dependable power. And the yellow above that, extending over to 1970, shows the market for power which cannot be produced by present installations, the Colorado-Big Thompson or the Fryingpan-Arkansas project which will probably be installed within this period, or could be.

Mr. DAWSON. What is the reason that you show the amount of power available from private utilities to be going down?

Mr. POWELL. That, sir, is because of retirements of machinery becoming obsolete.

Mr. DAWSON. Do you not contemplate that private utilities might also increase their capacity over the years?

Mr. POWELL. It is entirely possible, sir, they will be obliged to meet the demand. This is present capacity with obsolescence on the present capacity, and on top of that is this addition represented in that area. Is that clear?

Mr. DAWSON. I do not want to interfere with this witness as he is going along. Is it all right for me to ask him some questions?

Mr. HARRISON. Go right ahead.

Mr. DAWSON. The question was asked here this morning by one of the members, if you had exhausted the possibilities of private utilities coming in here and developing some of these powerplants themselves. Would this be an appropriate time for you to discuss that?

Mr. POWELL. These hydro powerplants or steam powerplants, sir?

Mr. DAWSON. The hydro plants.

Mr. POWELL. In the past there have been various investigations by the two principal companies in eastern Colorado into the possibilities of developing this hydroelectric capacity. The literature which they have left on the record would indicate that it is impossible to develop hydropower.

I will say this: From my studies I believe that it is impossible to develop power on the Arkansas side without additional storage and additional water. Because all of the water, sir, in the river is committed to irrigation, and they have the call on it, there is no possibility of reregulating that water for firm power except by some sort of a plan that we delineate in this report.

Do I make myself clear?

Mr. DAWSON. I think so.

Mr. POWELL. The flow at Pueblo 60 days ago was less than 50,000 gallons an hour.

This is the last chart. It shows the functions on top here—irrigation, municipal water, power, flood control, fish and wildlife, sediment control.

By scale it shows the benefits of each, except fish and wildlife benefits which are not evaluated.

On this side we have the annual benefits. On this side we have the annual revenues by the people who enjoy the benefits, presumably.

Here are the direct benefits from irrigation—$1,598,000. For those benefits there accrue annual revenues of $512,000 due to project. The discrepancy between the two, except for the incentive which amounts to over 20 percent, and arbitrary discount for safety, is related to return flows and other items which cannot be assessed for repayment.

Indirect benefits of $2,757,000 accrue to the business establishments and others from increased trade.

Municipal water, $1,662,000. That is the value of water which might be produced by an alternate source. In payment for that water it is contemplated to collect $1,484,000 yearly. This includes operation and maintenance and replacement for the water plant.

Next is power. Benefits on this end of the chart, $2,702,000, are determined by the value of power in the area. This collection over here of $2,375,000 is the sale price of the power at the rates shown in the report.

Flood control. The benefits are $598,000, and that is a nonreimbursable item.

Fish and Wildlife, as I said before, was not evaluated.

Sediment control in the Pueblo Reservoir. Sediment will be deposited over a hundred year period in the amount of about 93,000 acre-feet, and that will eliminate charges for cleaning on canals and destruction of storage capacity in the reservoirs below Pueblo, which are slightly off the river, and on the river, and including this flood control job here of the Army [indicating], in a smaller amount of $141,000. That also is incident to the project. There is no payment for it. It is just evaluated and that is all there is to it.

Mr. DAWSON. I would like to ask you a couple of questions on flood control and on fish and wildlife, the non-reimbursable items.

Mr. POWELL. Yes, sir.

Mr. DAWSON. I see you have some $20 million on flood control, and later on I assume you are going to discuss more of the physical features of this project.

Mr. POWELL. I will to the extent you people wish.

Mr. DAWSON. I am interested in knowing what you are doing in the way of flood control if you are spending that much money on flood control features.

Mr. POWELL. Yes, sir.

Mr. DAWSON. And also the annual benefits to fish and wildlife. I see most of those benefits are over on the west side of the slope. In other words, they are paying some of these fellows off over here on the west side with some free Government money. You do not pay any of that back, but the benefits you claim for fish and wildlife are over there on the other side where, according to the Congressmen, probably they do not want this project; but you are going to give them free Government money over there anyway.

Mr. POWELL. May I answer the flood control first?

Mr. DAWSON. I would like to hear you discuss it.

Mr. POWELL. This figure, $598,000 is the amount of damage that might be prevented on an average annual basis between the Pueblo Reservoir and the John Martin Dam. That is in the destruction of crops, property and other values. That comes from the determination made by the Corps of Engineers.

The item to prevent that flood damage is the Pueblo Reservoir in which there is approximately 100,000 acre-feet of flood storage. This 100,000 acre-feet of flood storage will take care of, according to the Corps of Engineers, floods which occur above Pueblo, which might cause damage. Now the 1921 flood ran about 100,000 acre-feet in a short period of about 3 days. At Rocky Ford there was almost 200,000 acre-feet, almost as much as Niagara flows. At La Junta there was an equal amount. This reservoir would eliminate that 103,000 second-feet that was in the river at Pueblo and this is historic occurrence.

Mr. DAWSON. Is the total amount of your flood-control works the reservoir itself? Is there any building of dikes?

Mr. POWELL. No, sir; that is the entire amount. It is all in that one structure.

Mr. DAWSON. All in the reservoir?

Mr. POWELL. All in the one structure. And this amount that was allocated to flood control was determined by a hypothetical construction here which would accomplish the same purpose at the same site. In other words, we built on paper a reservoir to hold the flood and the sediment which would occur in 100 years, and then by this system which Mr. Tomlinsom explained this morning we determined how much saving to that purpose would accrue from multiple-purpose use.

Mr. DAWSON. When you say "we" you mean?

Mr. POWELL. The Bureau of Reclamation.

Mr. DAWSON. The Army engineers made the estimate on flood control; did they not?

Mr. POWELL. They made the estimate on the damages, sir, and we made the estimate on the savings which might accrue to that function by the multiple-purpose use of this site.

Mr. DAWSON. Go ahead.

Mr. POWELL. If there are no other questions——

Mr. ASPINALL. Mr. Powell, I have a question about fish and wildlife.

Mr. DAWSON. I thought he was going on to that next.

Mr. POWELL. I am, yes, sir, if I am through, with flood control, sir.

Mr. ASPINALL. If that is what you are doing, that is all right.

Mr. POWELL. All right, sir, I will go on to the other function, fish and wildlife.

Let me go into the Twin Lakes diversion first. The Twin Lakes Reservoir & Canal Co. is a privately owned and operated irrigation system which waters about 60,000 acres of land on the north side of the river right here [indicating]. See that green there. That is the Twin Lakes irrigated area, about 60,000 acres of land.

They have a direct flow right from the river. They did not have enough water in 1937, and they borrowed money from the RFC and constructed a diversion of their own. It is, I would say, a fortunate diversion. It was one of the most attractive diversions of water from one watershed to the other that I have ever seen, and my experience is limited to about 50 years. I was born in this country.

That system is on the head of the Roaring Fork River here. It is capable of diverting about 35,000 to 40,000 acre-feet of water under the present conditions.

They also own the Twin Lakes Reservoir right here [indicating]. The natural reservoir holds about, as I remember, 56,000 acre-feet when full.

With this reservoir and their present tunnel, which they do not intend to enlarge, as I said, they divert this amount of water. Now if that system was utilized to the full, it could divert about 53,000 acre-feet of water. This could be increased. They need storage on this side, on the Arkansas River side, in order to do that. We do not divert water just to give it to somebody else. What I am speaking of when I say "we", I am still a hick boy down here in the country.

If this diversion is used to the full extent, it will take the waters at certain times of the year to a dangerous low point in the Roaring Fork River above Aspen. This project is planned to take water from the high flows in the South Fork of Hunter Creek and also from Line Creek, which is up here [indicating]; take that through this system, store it on the east side, and deliver it to the Twin Lakes people at such time as the flow is low and they might divert a low flow to the damage of the fishing in the Roaring Fork River.

That is the benefit to the Roaring Fork River, and that is the basis of the allocation. And the allocation, Mr. Chairman, Mr. Aspinall, and gentlemen, is the cost of enlarging the system to capture the water necessary to make this exchange.

Mr. DAWSON. Where does your fish and wildlife come in?

Mr. POWELL. It is all fish, sir. It is preservation of present fishing on this side of the mountain. That is a very popular and attractive fishing area.

Mr. ASPINALL. I might observe at this moment: After they take the water, unless they make these arrangements to send some other water in place of it, there is no fish and wildlife left up there. The water once taken to the eastern slope dries up the headwaters of those streams. So what Mr. Powell is referring to as necessary improvement is that which will bring water from the other watersheds so they can keep the fish life fairly good in the streams from which they have already taken the water.

Mr. DAWSON. That is the point I am getting at. It is my understanding that the way this law was set up, the reasons for it was for

the benefits which a project of this kind would make for fish and wildlife.

Mr. POWELL. That is right, sir.

Mr. DAWSON. You are not making any benefit, you are just taking this from Government money to pay damages over there.

Mr. POWELL. No, sir.

Mr. DAWSON. In other words, you are taking the water out and killing the fish; so we have got to put up some money for it.

Mr. POWELL. Sir, the Twin Lakes Canal & Reservoir Co., if you will pardon me, are taking the water out by their own right, and this project is returning the water to the river. Now there is no hindrance to private ditch companies to take all the water they wish under the State law.

Now let's not confuse. In this Fryingpan area up here we, by negotiation with the State of Colorado, and the Fish and Wildlife, leave in the river adequate water—I say leave in the river adequate water—to take care of the fish and wildlife of that stream.

Mr. ASPINALL. Mr. Powell, was not the Twin Lakes diversion supposed to do that, too? Was not that the understanding that the people of the upper waters of Roaring Fork thought they had?

Mr. POWELL. I would prefer not to answer a question of that kind.

Mr. ASPINALL. I cannot answer it either, but that is what they tell me.

Mr. POWELL. I would rather someone else would answer it because my information, Mr. Aspinall, is limited to hearsay, and no direct investigation on my part.

Mr. DAWSON. I still am not convinced that this project is going to propagate fish and wildlife. I can see where you are going to destroy some of it and you want to replace some, but I do not think you are going to have any more fish or any more wildlife as a result of this project than you already have.

Mr. POWELL. That is a distinction, sir, that is a little hard to get. The Twin Lakes people are an independent concern. We do not destroy any fishing in our area. We merely take water over here to restore and prevent damage on the stream which the Twin Lakes people——

Mr. DAWSON. The point I am making is that you are doing it to prevent damage——

Mr. POWELL. That is right.

Mr. DAWSON. Rather than propagating fish and wildlife.

Mr. T. R. WITMER (Department of Interior, Bureau of Reclamation). Mr. Dawson, with Mr. Powell's permission, I can understand that there is a considerable problem policywise on this about which I won't attempt to speak. But on the question of what the law presently is: The act of August 14, 1946, provides that the Secretary shall—and I emphasize the word "shall"—allocate an appropriate portion of the cost of any project thereafter constructed under the reclamation laws to the preservation—I am quoting exactly—the preservation and propagation of fish and wildlife.

There has been considerable discussion in the past as to whether that ought perhaps not to be limited to improvement in fish and wildlife conditions, but the record of that legislation, as well as its own terms, makes it clear, I believe, that it requires an allocation wherever damage to wildlife is prevented.

Mr. DAWSON. In this instance then, instead of being propagation, it is preservation?

Mr. WITMER. I will let Mr. Powell speak as to what it is. I am merely saying that, whether it be preservation or propagation, the law, as it is presently written, requires a nonreimbursable allocation.

Mr. DAWSON. I notice in the Bureau of the Budget's report they also call attention to this fact—that there is question whether the allocation for fish and wildlife is a proper item.

Mr. WITMER. You may recall that a few years ago the Bureau of the Budget in reports on other bills was objecting to any allocation where it was for propagation, saying it was proper only for preservation. In this report, which I have not yet seen, apparently they are saying that a nonreimbursable allocation is appropriate and justifiable only where it is propagation, not where it is preservation. The law, however, covers both of them.

I am sorry to interrupt, but I thought this might help if I could get that on the record for you, sir.

Mr. POWELL. Is that adequate?

Mr. DAWSON. Did it answer it? No; it does not. But go ahead.

Mr. POWELL. My statement will cover this repayment by the revenues of the project.

This zero, that's a million dollars down, and this red figure is the money collected for the operation and maintenance and replacement to keep the system in 100-percent working order.

Going up, we have a total of revenue yearly of a little over $3 million.

This group here [indicating] is the power investment, and this is the power interest. This shows a power investment of $41,945,000.

(The chart was reversed by the witness.)

I thought that thing looked funny.

With very little difference as far as the O. & M. is concerned.

This is the Collbran formula modified. There is no use to go into this further. They explained the 2½ percent this morning much more effectively than I can.

This is the power investment of $43,275,000, which includes the interest during construction at 2½ percent.

This yellow is the interest to the Treasury on the power investment over 50 years after the construction of the last plant in the amount of $33,133,000.

Above here, running for 69 years, we have the payment by the farmers and by the district in the form of a tax of 1 mill in the total amount of $42,918,000, and that is the annual net amount of $622,000 times approximately 70 years.

Above this we have the municipal water investment of $33,808,000, which also includes the interest during construction. On that we have an interest payment of $28,508,237.

Mr. DAWSON. When is the principal paid back-in municipal power? It looks like it goes beyond the 50-year period, does it not? I mean the municipal domestic water.

Mr. POWELL. It goes beyond. This is 50 years from the installation of the last unit here, sir [indicating]. The distance from there to there is 50 years. The distance from the last installation in the power payout is 50 years.

Mr. DAWSON. Then your construction period on your power features is going to be much shorter than on your municipal water features?

Mr. POWELL. Somewhat, sir.

Now if you will notice the payment by these irrigation people and the district runs for 69 years, with a little tag out here in the 70th year. And after the power features are paid for, the municipal water features are paid for, there accrues from the municipal water revenues $6,738,000 which will help pay off the irrigation allocation.

There are also power revenues of $25,472,000. That liquidates the entire indebtedness, interest on these two items, the power and the municipal water, and the interest-free consideration for the amount allocated to the irrigation functions.

After the 69th year this yellow indicates money returning to the Treasury in the amount of the income from the power features over and above the running expenses of the power plant.

I believe that is about as clear as I can make it.

Mr. ASPINALL. Mr. Chairman?

Mr. HARRISON. Mr. Aspinall.

Mr. ASPINALL. I would like to ask Mr. Tomlinson or Mr. Witmer or Mr. Powell if it is possible to furnish this committee with copies of that graph figured as it has been figured in the modified Collbran formula, another graph made on the Collbran formula itself, and another graph which takes care of the interest component operation as we have been in the habit of seeing it.

Mr. TOMLINSON. Yes, sir, we will be glad to get that up. We may want to check with you to see exactly the formula in which you wish, that middle one. We will be glad to furnish it.

Mr. ASPINALL. I just want the middle one on the pure Collbran formula as you advised the way it operates. I think if we had that, then some of the questions that were asked this morning would get better answers than what we seem to have gotten.

Mr. TOMLINSON. Mr. Powell has, I think, substantially that information right here if you would like to see it now.

Mr. ASPINALL. It would not be any good to me unless I can sit down and see it.

Mr. TOMLINSON. We will supply it.

Mr. HARRISON. You will present those, Mr. Tomlinson?

Mr. TOMLINSON. Yes, sir.

(The requested graphs were furnished and are in the committee files.)

Mr. POWELL. Are there any further questions?

Mr. HARRISON. I believe not.

Mr. POWELL. I will go on then to the matter of the ability and willingness of the farmer to pay for the project.

I do not think it is necessary to—I will however if you desire—reiterate the sources of revenue.

This revenue, as I said, amounts to $622,000. It is payment for about 185,000 acre-feet of water, on the average, a year. That amount of water on 300,000 acres is six-tenths of an acre-foot. About seven inches deep. That is about equivalent to two irrigations. It is supplemental water. It is usually visible almost entirely at the beginning of the season. It can be depended on as far as the winter water is concerned. It will be lying in the Pueblo Reservior for use in that period of the farming season in eastern Colorado which is extremely dangerous to seed generation. We have very low rainfall and our snow water does not begin until almost the first of June.

Mr. DAWSON. Do I understand you to say that six-tenths of a foot is just enough for 2 irrigations?

Mr. POWELL. Yes, sir, and I might say it is supplemental water, and for 20 years it will take care of the shortage.

Mr. DAWSON. When you say 2 irrigations, do you mean 2 waterings on that land, where you turn the water loose?

Mr. POWELL. Just about.

Mr. DAWSON. In other words, you take a fourth of an acre-foot at an irrigating?

Mr. POWELL. Let me ask one of these dirt farmers. Where is one?

Mr. RYAN. That is about right. That is quite correct.

Mr. HARRISON. When a question is answered from the back will the gentleman identify himself for the record?

Mr. RYAN. I am Ted Ryan, farmer, Rocky Ford, Colo.

Mr. HARRISON. Thank you.

Mr. DAWSON. In other words, you take a fourth of an acre-foot of water each irrigating on this land?

Mr. POWELL. That is right, sir. We put 3 feet in a year, and that is about 6 or 7 or 8 irrigations. Is that not right?

Mr. RYAN. Yes.

Mr. POWELL. I would like to have these dirt farmers verify this.

Mr. DAWSON. That is an awful lot of water.

Mr. POWELL. It is a lot of water. It takes 30 inches of water to produce a farm crop in Illinois, but the Lord provides that.

Mr. DAWSON. There is a lot of difference between 30 inches of water when you are figuring acre-feet. I mean you take all that water at once and you flood it out on some land, and a quarter of an acre-foot of water is a lot of water that is put out there all in one flooding.

Mr. POWELL. Well, that is the general practice, sir.

Mr. DAWSON. I have done a lot of irrigating out in my section of the country where we raise alfalfa and sugar beets, and we figure an acre-foot of water a year, and we water about once a week. You can figure it out.

Of course, it may be you have a different type of soil. I do not know. Maybe your water is a little drier up in Colorado than ours.

Mr. POWELL. I am sure that we can furnish the information for you, Mr. Dawson.

As I said, Mr. Dawson, in that country we will use about 18 inches in a year on the crop. Now, the difference between this 3 feet and a foot and a half on the crop is the losses from the headgate to the crop, a great deal of which is not lost, but which returns to the river. It is not a loss.

This $622,000 of indicated repayment capacity, with exclusion of the collection from ad valorem tax, is the amount of ability to pay determined by a very extensive study participated in jointly by the Bureau of Reclamation employees in Pueblo and something over 300 farmers in the valley. These farmers are all located on the farms. They made their own estimate of their repayment ability, and the figures that show in the report and this figure of $5.40 is the result of their work.

The gentleman who will appear after me will verify their determinations.

In compliance with the request of Mr. Saylor yesterday, I have prepared copies of the following statement showing, by items, the increase in project costs between October 1949 and January 1953.

Fryingpan-Arkansas project costs

Feature	Total, October 1949	Total, January 1953 index
Aspen Dam and Reservoir	$6,746,000	$8,102,000
Sugar Loaf Dam and Reservoir	6,782,000	7,248,000
Twin Lakes Dam and Reservoir	9,282,000	10,222,000
Salida Afterbay [1]		310,000
Pueblo Dam and Reservoir	41,524,000	43,453,000
Main purification plant [2]		7,148,000
Pueblo pumping plant [2]		1,470,000
Colorado Springs pumping plant [2]		155,000
Hunter Creek-Aspen Canal	190,000	288,000
Hunter Creek extension canal	280,000	409,000
South side collection system	20,427,000	9,263,000
North side collection system		21,126,000
Fryingpan-Arkansas tunnel	8,839,000	10,111,000
Snowden Canal	763,000	792,000
Arkansas power canal:		
Elbert Canal	1,629,000	1,759,000
Twin Lakes-Otero Canal	1,148,000	1,623,000
Otero-Wapaco Canal	1,629,000	2,188,000
Wapaco diversion [1]		266,000
Wapaco-Princeton Canal	2,113,000	2,466,000
Chalk Creek diversion [1]		96,000
Princeton-Pancho Canal	1,532,000	2,023,000
Pancho-Salida Canal	1,856,000	2,508,000
Oil Creek-Brush Hollow Canal [2]		361,000
Pueblo water conduit [2]	18,050,000	1,735,000
Arkansas Valley water conduit [2]		10,631,000
Powerplants	12,578,000	14,917,000
Powerplant switchyards	3,548,000	3,885,000
Transmission lines	7,988,000	5,079,000
Transmission substations [3]		2,091,000
General property [4]		1,173,000
Operation, maintenance and repair during construction [5]	536,000	
Total	147,440,000	172,898,000

[1] Distributed to power plants in October 1949 estimate.
[2] All consolidated as $18,050,000 in October 1949 price estimate. Now $21,500,000.
[3] Included in transmission facilities in October 1949 estimate.
[4] Taken from various items above.
[5] Distributed in January 1953 estimate.

June 8, 1953.

Unless there are some questions, I believe I have concluded.

Mr. HARRISON. Thank you, Mr. Powell. Mr. Powell's prepared statement will be made a part of the record at this point.

(The statement referred to is as follows:)

STATEMENT BY BEN F. POWELL, AREA ENGINEER, UPPER ARKANSAS RIVER AREA, PUEBLO, COLO., ON THE FRYINGPAN-ARKANSAS PROJECT, JUNE 1953

The Fyingpan-Arkansas project is a potential multiple-purpose self-contained water development located entirely within the State of Colorado. Because transmountain diversion is involved, the project has features on both the west and east sides of the Continental Divide. Principal purposes that would be served are: irrigation, municipal water, hydro-electric power, flood control, and sediment control. Recreation and fish and wildlife benefits would also accrue.

An annual average of about 185,000 acre-feet of supplemental irrigation water would be provided at canal headgates in the Arkansas Valley. This amount includes transmountain diversion of 69,200 acre-feet of project water from tributaries of the Fryingpan and Roaring Fork Rivers, an additional 14,900 acre-feet of water which would be imported annually by the Twin Lakes Co., conservation of flood flows in the Arkansas River, and regulation of winter flows. Reuse or return flows would, in effect, expand that water supply. This water would be

available to the 322,000 acres of presently irrigated lands which now suffer an average annual shortage of water estimated at 35 percent of headgate diversion requirements. With the additional supply, the shortage of water would be entirely eliminated in 17 years out of 34, and the average shortage would be reduced to about 16 percent.

The amount of water now available for the 322,000 acres of irrigated lands varies considerably from year to year. Water shortages have occurred every year ranging from as high as 78 percent to as low as 3 percent of crop requirements. Seldom is the supply adequate for full crop production. The base flow of every stream in the valley is overappropriated. Enhancement of the irrigation water supply depends upon regulation of existing supplies for more efficient use, storage capacity for the conservation of excess flood flows, reservoir space for holdover storage, and new water supplies for which the only source is transmountain diversion from the Colorado River watershed.

Present municipal water supplies are inadequate for continued population and industrial growth. In the Arkansas Valley towns the supplies are generally poor because of excessive hardness. The project will provide about 15,000 acre-feet of municipal water annually to supplement the supplies of Colorado Springs, Pueblo, and at least eight smaller communities in the Arkansas Valley where additional quantity and better quality water are urgently needed.

En route to its ultimate users, the imported and regulated water would generate about 505 million kw.-hrs. of electric energy annually in hydroelectric plants. There is a ready and ever growing market for this energy. It is needed to meet the requirements of increasing uses of electric energy on farms and in cities and of mining and industrial expansion.

Flood protection would be provided by the terminal eastern-slope reservoir which would eliminate about 66 percent of the probable annual flood damages in the valley between the Pueblo and John Martin Reservoirs.

Sediment control and the preservation and propagation of fish and wildlife in certain areas would also be important and valuable contributions of the project.

PROJECT PLAN

The preceding purposes would be accomplished through the construction of: (*a*) a system of about 50 miles of canals and tunnels on the western slope for the collection and movement of water from Hunter Creek and tributaries of the Fryingpan River; (*b*) Aspen Reservoir, with an active capacity of 28,000 acre-feet near the town of Aspen on the western slope to provide replacement water and water for future western-slope uses; (*c*) the 6-mile Fryingpan-Arkansas transmountain diversion tunnel; (*d*) enlargement of the existing Sugar Loaf and Twin Lakes Reservoirs and the construction of Pueblo Reservoir for a total eastern-slope storage capacity of 777,000 acre-feet; (*e*) diversion facilities to pick up Arkansas River flows; (*f*) a project power system comprising 60 miles of canals, 7 powerplants having an installed capacity of 104,800 kw., 7 switchyards, 9 substations, and necessary transmission lines; and (*g*) specific municipal water supply facilities for furnishing additional municipal water to Colorado Springs, Pueblo, Manzanola, Rocky Ford, La Junta, Las Animas, Lamar, Crowley, Wiley, and Eads. The project plan provides for the construction of the specific municipal supply works by the United States only after it is proved that construction by the communities themselves is unfeasible.

The present plan for the Fryingpan-Arkansas project is the culmination of many years of effort by residents of the Arkansas valley.

The need for supplemental irrigation and municipal water was demonstrated in the 1920's. Various private plans for the importation of water were started, some were actually developed, but no overall plan could be devised because of the numerous complex problems involved. The severe drought of the 1930's demonstrated the vulnerability of the Arkansas Valley and the urgent need for action. In 1936 the Bureau of Reclamation initiated a comprehensive survey of the Upper Arkansas River Basin to appraise needs and possible methods of alleviation. Early studies envisioned the importation of a relatively large quantity of Colorado River water into the Upper Arkansas Basin. However, an inventory of resources, needs, and potential uses of water on the western slope had not then been made—in fact it has not been completed to this date. Consequently, it was deemed expedient to develop a self-contained plan which would divert only a minimum amount of critically needed water that was assuredly beyond the requirements of the western slope and yet have a project that could fit into a much larger development should such expansion ever come to pass. The present plan is the result.

The project has been designed to obtain maximum values for each dollar of investment. This has been accomplished by designing features for multiple uses and planning for coordinated and integrated operations. The interrelationship of operations is demonstrated by the need for interconnection of the hydroelectric plants. These plant interconnections will enable the operation of reservoirs in such a manner as to insure maximum generation consistent with optimum water supply for irrigation. Interconnections with adjacent power systems will also be required to assure an uninterrupted flow of energy to the power markets. Only the municipal water supply phase of the project is susceptible of complete separation without jeopardizing the other purposes. In the event that construction of specific municipal water facilities should be deferred, the water can be used for irrigation. The other phases of the project—irrigation, power, flood control, sediment control—are so closely tied together in features and operation that elimination of all or parts of any one function would have a profound effect upon the others. This project is a true multiple-purpose development.

Prior to completion of the planning report by the Bureau of Reclamation, a State policy and review committee was appointed by the Colorado Water Conservation Board to study the proposed project plan. The committee was composed of representatives of the conservation board, the Colorado Game and Fish Commission, western Colorado, the Arkansas Valley, and the city of Colorado Springs. The committee approved the proposed diversion and recommended certain principles of project operation which have been made a part of Senate Document No. 106, 82d Congress, 2d session.

The planning report has been officially reviewed by States in the Colorado River Basin, by Kansas and by affected Federal agencies. Colorado approved the proposed development conditioned upon compliance with the operating principles mentioned above and upon changing the name to the Fryingpan-Arkansas project. The States of Kansas, Arizona, California, Utah, and Wyoming have no objection to the authorization and construction of the project. Views and comments of the various Federal agencies are generally favorable; some agencies recommended refinements or offered suggestions all of which have been considered in the revised report. Concerned Federal field agencies offered comments on the preliminary draft of the report which were considered in completing the project report.

COSTS AND BENEFITS

Estimated project construction costs have been adjusted upward for price changes from the $147,440,000 based upon October 1949 prices shown in the basic report to $172,898,000 based upon January 1953 prices. Estimated annual operation, maintenance, and replacement costs are $1,313,000—a sum sufficient to operate and sustain the project facilities.

Benefits will accrue to the functions of irrigation, municipal and industrial water supply, power, flood control, fish and wildlife conservation and propagation, and sediment retention. Irrigation aspects include supplemental water supplies, conservation and use of flood flows, reregulation and more timely use of water now used for winter irrigation, and reuse of return flows from both irrigation and municipal water supplies.

Annual irrigation benefits have been evaluated in two categories—direct benefits in the form of increased net farm income amounting to $1,598,000 annually and indirect benefits in the form of increased income stemming from the marketing and processing of farm commodities and from increased purchases by the irrigation farmers. These indirect benefits are estimated at $2,757,000 annually. The irrigation benefits are based upon a prospective agricultural price index of 215 and parity at 100 percent.

Municipal water supply benefits total $1,662,000 annually and are derived from analysis of the costs of developing and operating an alternative single-purpose municipal water supply system.

Annual power benefits of $2,702,000 represent the value of project power in the area to be served.

Flood control benefits in the reach of the Arkansas River between Pueblo and John Martin Reservoir were evaluated by the Corps of Engineers and total $598,000 annually on the basis of prospective future prices. (Engineering News Record index of 180 when 1939 equals 100.)

Fish and wildlife benefits have not been evaluated in an annual amount. However, the Game and Fish Commission of the State of Colorado and the Fish and Wildlife Service concur in the conclusion that incremental costs of western

slope features of $2,830,000 are supportable for the mitigation of existing and future losses occurring from present diversions of water.

Annual sediment retention benefits of $141,000 are of relatively small magnitude. They represent savings of annual costs of cleaning and maintaining existing canals and diversion works due to less sediment deposition and the prolongation of the useful life of exising downstream reservoirs.

The ratio of total benefits to total annual project costs is 1.48:1.00. It is significant that the sum of the direct benefits alone is sufficient to support all project costs.

COST ALLOCATION

The total estimated project construction costs have been allocted to all functions served except sediment control. The allocation to fish and wildlife is limited to the incremental costs of $2,830,000 for features on the western sope that will mitigate losses. Allocations to the remaining purposes have been made by the widely used alternative justifiable expenditure method. Its application results in allocations of costs to each function which cover the cost of including the function in the multiple-purpose project and which share equitably in both the joint costs and in the savings arising in the combination of multiple purposes. The allocations follow:

Function	*Allocation*
Irrigation	$75, 128, 000
Power	41, 945, 000
Municipal water	32, 654, 000
Total reimbursable	149, 727, 000
Flood control	20, 341, 000
Fish and wildlife	2, 830, 000
Total nonreimbursable	23, 171, 000
Total construction cost	172, 898, 000

REVENUES

The plan of project operation calls for the formation under provisions of Colorado law of a water conservancy district which would contract with the Government for the payment of project services performed in the collection, storage, regulation, and release of water. Supplemental irrigation water at specified rates would be released to the district at reservoir outlets, or possibly along the river, depending upon circumstances. The basic report proposed a rate of $3.60 per acre-foot at or above the Pueblo Reservoir. This rate has been determined to be within the payment capacity of the water users on the basis of agricultural prices prevailing during the period 1939–44 when the agricultural price index averaged 144. It is proposed that the contract with the conservancy district will contain provisions for varying annual water charges in accordance with agricultural prices. That provision together with the assumption that the future agricultural price index will be 215 rather than 144 will result in adjustment of the basic rate per acre-foot of water from $3.60 to $5.40.

Under contractual arrangements the conservancy district would assume responsibility for the delivery of irrigation water. This district or possibly another entity would contract with the Government for Federal construction of the specific municipal water system, for district operation and maintenance of that system, and for delivery of water from the joint water supply system. There will also be other sources of annual revenue; proceeds from an ad valorem tax levied by the conservancy district on taxable property benefited by the project, a service charge for the storage of the additional Twin Lakes irrigation water, service charges for the reregulation of water supplies now used for winter irrigation, and a service charge for project storage of the additional water of the Colorado Fuel & Iron Corp. which is included with municipal supplies for payout analysis. Estimated annual project revenues for irrigation, power, and municipal and industrial water are summarized in the table on the following page.

REVENUES

Function and source of revenue	*Annual amount payout analysis*
Irrigation and district:	
Project water (56,700 acre-feet. at $5.40)	$306, 180
Twin Lakes service (12,500 acre-feet at $3)	37, 500
Regulation of winter water (74,000 acre-feet at $2.25)	166, 500
District tax ($198,306,000 at 1 mill minus 10 percent)	178, 475
Subtotal	688, 655
Less O. M. & R	−67, 000
Net irrigation revenues (rounded)	622, 000
Power:	
370,000,000 kilowatt hours at 5.5 mills	2, 035, 000
97,200,000 kilowatt hours at 3.5 mills	340, 200
Subtotal	2, 375, 200
Less O. M. & R	−870, 800
Net power revenues (rounded)	1, 504, 400
Municipal and industrial water supply:	
Municipal supplies (38,000 acre-feet at various rates)	1, 476, 410
C. F. & I. (4,000 acre-feet at $2)	8, 000
Subtotal	1, 484, 410
Less O. M. & R	−420, 220
Net municipal water revenues (rounded)	1, 064, 190
Total annual net project revenue	3, 190, 590

The revised report shows a repayment procedure which would provide permit project payment under the following assumption: interest during construction is added as a cost to the allocations of both power and municipal water supply; also, the interest rate of 2½ percent is applied in the amortization of the power and municipal water investments. On this basis, the power investment could be retired in 44 years after the last unit is completed and the municipal water investment could be repaid in 50 years after the last facility is completed. None of the interest components would be used to assist in payment of the irrigation investment. Instead, the revenues from the irrigation beneficiaries would be applied for a period of 69 years, full net power revenues would be applied against irrigation costs beginning in the 53d year of study and extending through the 69th year and full municipal water supply revenues would be applied beginning in the 63d year and ending in the 69th year. A small portion of net power revenues in the 70th year would be necessary to compete the repayment of the irrigation investment.

After retirement of investments the continuing annual net power revenues would accrue to the United States Treasury throughout the remaining useful life of the project works.

The Fryingpan-Akransas project is feasible from an engineering standpoint, its services and products are vitally needed in the area to be served, and its revenues will return all reimbursable costs within a reasonable period of years.

Mr. HARRISON. Judge Chenoweth, who is next?

Mr. CHENOWETH. Our next witness is Mr. Royce J. Tipton, consulting engineer of the Colorado Water Conservation Board, an engineer of wide water experience whose qualifications to speak on water matters are generally recognized and accepted.

Mr. ASPINALL. And when my colleague said "wide" he means international?

Mr. CHENOWETH. That is right.

STATEMENT OF MR. ROYCE J. TIPTON, DENVER, COLO.

Mr. TIPTON. Mr. Chairman and members of the committee, my name is Royce Tipton, consulting engineer with offices in Denver, Colo. In addition to operating as an independent consulting engineer, I am a principal in, and at the moment president of, three engineering corporations which are engaged in water development work in the United States, Columbia, Venezuela, and Pakistan.

Mr. Chairman, I have prepared a statement which I will not read in order to conserve the time of the committee. The statement does have some material in it that has not been presented by other witnesses but it also has some material that constitutes duplication.

So I would like to submit the statement for the record and merely make a brief oral statement and answer questions.

Mr. HARRISON. That will be done without objection.

(The statement submitted by Mr. Tipton follows:)

STATEMENT SUPPORTING THE PROPOSED FRYINGPAN-ARKANSAS WATER DEVELOPMENT BY ROYCE J. TIPTON

My name is Royce J. Tipton. I am a consulting engineer with offices in Denver, Colo. In addition to operating as an independent consulting engineer, I am a principal in, and at the moment president of, three engineering corporations which are engaged in water development work in the United States, Colombia, Venezuela, and Pakistan.

I have been identified as an engineer in varying capacities with the water development of the State of Colorado and the problems incident thereto since 1924. I have been consulting engineer for the Colorado Water Conservation Board continuously since its creation in 1937.

For more than 50 years continuous and strenuous efforts have been made by irrigation and municipal interests in the Arkansas Valley in Colorado to build works which would provide needed supplemental water supplies. Since about 1925, I personally have been identified in various capacities with most of those efforts. Because of my personal knowledge of conditions in the Arkansas River Basin in Colorado, I can assure the committee that the need for the Fryingpan-Arkansas transmountain diversion project is great, not only to provide water for supplemental irrigation but to provide an additional supply for the future growth of the towns in the valley. Even when the project is completed the additional usable water made available by it will supply only about one-half of the irrigation shortages now being experienced by the lands irrigated by canals diverting from the main stream.

I wish to quote from a paper which I prepared in 1950 on water supply and water use problems in Colorado, which is particularly applicable to irrigation development in the Arkansas River Basin:

"The evolution of irrigation in Colorado has passed through numerous well-defined stages of development, the more modern stages of which may be classified as follows: First, the sporadic attempts by the early pioneers to divert water through small ditches for the irrigation of small fields adjacent to the streams for the production of those foodstuffs which found a ready sale in the early mining camps of the State.

"Second, the later developments through community effort, such as the Greeley and Fort Collins colonies, whereby larger ditches were laid out and constructed for diverting water from the streams and conveying it to the uplands adjacent thereto, thus covering large areas of land previously considered to be infertile and valueless. These enterprises required much ingenuity, a strong community spirit, and fortitude to overcome almost insurmountable obstacles.

"The third phase in the development of irrigation in the State required greater wealth than was available locally. As a result, large sums of out-of-State capital were invested by corporations in enlarging some of the canal systems previously constructed, and in constructing new systems for diverting still larger quantities of water for reclaiming still larger areas of benchlands. Many of these ventures resulted in a loss to the investor, with the result that in succeeding years practically all of the canal systems became the property of the individual water users through the formation of mutual companies.

"The fourth phase of development resulted when the basic flows of the streams became overappropriated. The available water supplies at certain seasons of the year were entirely inadequate to supply the needs of the canals, while at other seasons of the year large quantities of water wasted down the river into adjoining States. To correct this condition, storage reservoirs were constructed to regulate the flow of the streams. As the financing of such developments was beyond the ability of the individual, community effort was again resorted to. Legislation was enacted which provided for the creation of irrigation districts. Other legislation was passed which enabled a community of landowners to issue certificates of indebtedness in the form of bonds for use in financing these larger enterprises."

Development of the water supplies of the Arkansas River in Colorado commenced in the 1850's and proceeded rapidly until the beginning of the present century. Some years before that time all of the basic water supplies of the river had been appropriated and the need for providing supplemental water supplies became apparent. The first phase of this development was the construction of reservoirs during the 1890's and early 1900's when some 38 reservoirs with an aggregate storage capacity of 634,000 acre-feet were constructed. During that period all reservoirs feasible of construction without Federal aid were constructed. Interests in the valley then began to look to transmountain diversions as the next most feasible source of supplemental water supply. Six small ones diverting an average of 7,000 acre-feet per year and having a potential of 13,000 acre-feet per year had been constructed by 1935.

Studies were made by the Colorado State engineer of the Taylor Park and Tennessee Pass transmountain diversion projects. These studies were completed in 1926. The most feasible of these two projects, the Taylor Park, which would have diverted 120,000 acre-feet of water per annum and for which there was much support in the Arkansas River Basin, finally became infeasible upon the authorization of the Taylor Park Reservoir for the benefit of the Uncompahgre project on the western slope.

Immediately after the Reconstruction Finance Corporation was created, one of the major irrigation entities of the Arkansas River Basin, the Twin Lakes Reservoir & Canal Co., in 1932 obtained a loan from that agency for the construction of the Independence Pass transmountain diversion. This project was completed in 1935. Its diversions have averaged about 35,000 acre-feet per year, but it has a potential of about 53,000 acre-feet per year.

In the meantime, incident to the so-called 308 studies conducted by the Corps of Engineers, there was studied cooperatively by that agency and the State of Colorado the Caddoa Reservoir which was subsequently authorized and constructed. It has been in operation since 1943. This adds 655,000 acre-feet to the total reservoir capacity of the basin, making a total of 1,289,000 acre-feet.

All of the supplemental water projects have been constructed by specific ditch companies or for specific areas and do not, and were not intended to, eliminate the basin-wide shortages in water supply which exist. There still exists in the Arkansas River Basin a great need for additional supplemental water supplies to take care of existing shortages. I wish again to quote from the above-mentioned paper which I prepared on water supply and water use problems in Colorado:

"A new era in water development has commenced which involves the construction of multiple-purpose projects to supply new lands with irrigation water and to provide supplemental water supplies for existing irrigated land and, in some cases, to make more useful the water that is already being used. Such projects include not only features for supplying irrigation water but also for generating hydroelectric energy, for flood control, and for other benefits. The remaining projects are so expensive and so involved both from a physical standpoint and from the standpoint of human relations that they are beyond the ability of individual irrigation districts or mutual ditch companies to construct. It is also beyond their ability, acting alone, to resolve many of the human relations problems which must be resolved before such projects can go to construction. Whole river basins or major portions thereof, including the municipalities and all industries that will be benefited by such developments, will be called upon to pay their fair proportion of the costs of such projects. Both the Bureau of Reclamation and the Corps of Engineers are being utilized to investigate such major projects in Colorado, and to prepare plans and specifications and supervise the construction of those which have been authorized for construction by those agencies. The Colorado Water Conservation Board, created by special act in 1937, is actively cooperating with the Bureau of Reclamation, the Corps of Engineers, and other governmental agencies, as well as State agencies and various local organizations, in planning the water development program for Colorado."

The Arkansas River Basin is now entering this new era of water development. Studies of various transmountain diversion possibilities have gone forward with

the help of the Bureau of Reclamation. These studies resulted in the crystallizing of plans for the project which is being considered by this committee at this time. Because of problems that arise in Colorado between west slope and east slope interests in connection with projects intended to transport water from the tributaries of the Colorado River to the east slope, the Colorado Water Conservation Board created a policy and review committee to review the plans of the Bureau of Reclamation as they were being developed for the Fryingpan-Arkansas transmountain diversion project. Western slope interests and eastern slope interests were represented on this policy and review committee, which in turn caused to be created an engineering advisory committee composed of engineers representing both slopes, the Bureau of Reclamation, and the State of Colorado. As representative of the State of Colorado, I served as chairman of this engineering advisory committee.

The engineering advisory committee reviewed in detail the original estimates of water supply made by the Bureau of Reclamation and the manner of operating the project. It also made detailed original studies as to the amount of replacement storage capacity required on the western slope to permit the free operation of the project without adverse effect to west slope interests. Incident to those studies there was taken into full consideration the recommendations made by the State game and fish department and the United States Fish and Wildlife Service concerning the amounts of water that should be left in the west slope streams immediately below the places where the intercepting canals of the proposed project would divert from those streams, and the amount of water that should be left at lower points on the stream. In order to satisfy the recommendations of both those agencies, the project plan was modified by extending its collection system to intercept the runoff from additional drainage areas.

It has been estimated that the headgate river requirements of the canals diverting from the main stream of the Arkansas in Colorado were 983,000 acre-feet per year for the period 1911 to 1942, and that the historical effective headgate diversions for the same period were 643,000 acre-feet. Shortages occurred every year, and at times were as great as 80 percent of the required supply. The mean annual shortage was estimated at 340,000 acre-feet.

All of the cities on the main river from Pueblo to the State line, as well as some of the cities on tributaries, such as Colorado Springs, are at the present time short of water. The quality of water utilized by some of the cities is extremely poor. The needs of the principal cities in the area which can be supplied with water by the project are shown in the following table. The indicated quantities would take care of present shortages and also provide sufficient supplies to take care of the reasonable future growth of the cities. In the case of all of the cities listed, except Colorado Springs and Pueblo, project water would replace entirely the present source of supply because of the poor quality of water now being utilized.

Additional water supply needed	*Acre-feet per year*
Town:	
Colorado Springs	5,231
Pueblo	4,574
Manzanola	139
Crowley	96
Rocky Ford	1,598
La Junta	2,450
Las Animas	937
Wiley	105
Eads	65
Lamar	2,150
Total	17,345

The engineering advisory committee concluded that the gross water supply that could be diverted by the project would average 69,200 acre-feet. It estimated that the total gross water supplies that would be made available by the project, including unused floodwaters and the storage of some water which is now inefficiently used for direct diversions in the wintertime, and usable return flow of project water, would be 219,100 acre-feet, of which there would be a usable headgate supply of 184,600 acre-feet for irrigation purposes and 17,000 acre-feet for municipal purposes.

After the project goes into operation it is estimated that there will still remain a residual mean annual shortage of water supplies for the lands irrigated from the main stem of the Arkansas of 155,000 acre-feet.

In order to protect west slope potential uses of water which might be impaired by the operation of a transmountain diversion, the Water Conservancy Act of Colorado provides the following which also is incorporated in the rules for operating the project, which were agreed upon by west slope and east slope interests: "* * * '*Provided, however*, That any works or facilities planned and designed for the exportation of water from the natural basin of the Colorado River and its tributaries in Colorado, by any district created under this chapter, shall be subject to the provisions of the Colorado River compact and the Boulder Canyon Project Act, as amended; that any such works or facilities shall be designed, constructed, and operated in such a manner that the present appropriations of water, and in addition thereto prospective uses of water for irrigation and other beneficial consumptive-use purposes, including consumptive uses for domestic, mining and industrial purposes, within the natural basin of the Colorado River in the State of Colorado, from which water is exported, will not be impaired nor increased in cost at the expense of the water users within the said natural basin; and that the facilities and other means for the accomplishment of said purpose shall be incorporated in, and made a part of, any project plans for the exportation of water from said natural basin in Colorado'."

The facility that could best accomplish this purpose is a replacement reservoir to be located about 1 mile above the city of Aspen, Colo. The total capacity of this proposed reservoir is 28,000 acre-feet which is much greater than the true replacement requirement. By studying the water supply and the operation of the project, the engineering advisory committee found the following to be the necessary increments of replacement capacity and desirable increments of capacity for other purposes:

	Capacity in acre-feet
Replacement purposes:	
1. Fryingpan-Arkansas project, summer diversions	3,100
2. Ultimate Twin Lakes diversions (Independence Pass)	6,100
3. Noncontingent replacement capacity	9,200
4. Difficult Creek (an increment of water which in the future might be transported from the Roaring Fork watershed to the Gunnison for ultimate transmountain diversion to the Arkansas)	2,100
5. Possible winter diversions by the Fryingpan-Arkansas project	5,000
6. Contingent replacement	7,100
7. Total replacement capacity	16,300
Other purposes:	
8. Supply natural shortages of water supply at or near Aspen	6,100
9. Supply possible future industrial uses	1,700
10. Total for other purposes	7,800
11. Total for all uses	24,100
12. Unassigned	3,900
13. Total capacity	28,000

The first increment of replacement capacity, 3,100 acre-feet, is necessary to permit the project to divert all of the water available to it during the summer period without interfering with present or future uses below the points of diversion on the western slope.

The existing Independence Pass, or Twin Lakes, transmountain diversion cannot divert all of the water physically available to the system at present because of interference at certain times of the year with prior uses on the western slope. Because of the value of imported water for the generation of energy by the project, it was deemed economical to provide sufficient replacement storage capacity in the Aspen Reservoir to permit the diversion of the total amount of water physically available to the Independence Pass transmountain diversion. In order to do this, it was found that 6,100 acre-feet of replacement capacity would be required in the Aspen Reservoir.

The total of these two replacement items, amounting to 9,200 acre-feet, represents the true noncontingent replacement capacity of the reservoir.

With respect to the operation of the existing Independence Pass transmountain diversion, one feature of the project plan contemplates that there will be left in

the tributaries of the Roaring Fork below the collection system of the Independenc Pass project sufficient water to take care of fish requirements, this water to be replaced in the Twin Lakes Reservoir by water diverted from the Fryingpan. This arrangement will require an agreement between the entity financing the Fryingpan-Arkansas project and the Twin Lakes Reservoir & Canal Co., the owners and operators of the Independence Pass project.

Prior studies of transmountain diversions made by the United States Bureau of Reclamation indicated that, if a diversion is constructed sometime in the future from the Gunnison River to the Arkansas River, it would be practicable and desirable to divert some of the water from Difficult Creek which is a tributary of the Roaring Fork into the Gunnison River Basin and thence into the Arkansas River Basin. An increment of replacement capacity amounting to 2,100 acre-feet was provided in Aspen Reservoir to replace the amount of water that might be diverted from Difficult Creek during those periods when there would otherwise be a conflict with interests in the Roaring Fork Basin and on the main stem of the Colorado River.

It is improbable that it will be feasible to operate the Fryingpan collection system during winter periods; however, to take care of the possible contingency that winter operation might become feasible, 5,000 acre-feet of replacement capacity was provided in the Aspen Reservoir to eliminate the adverse effect of the winter diversions on possible future industrial development on the Colorado River below the mouth of the Roaring Fork. There has therefore been provided 7,100 acre-feet of what I choose to call contingent replacement capacity, which may never be utilized for that purpose. This results in a total replacement capacity, both contingent and noncontingent, of 16,300 acre-feet.

Studies were made to determine the amount of reservoir capacity required to take care of natural shortages at or near Aspen. Assuming the full use of water now decreed in that area, it was found that 6,100 acre-feet of reservoir capacity would be required to take care of such shortages during the year of lowest runoff of the study period. Another increment of capacity, 1,700 acre-feet, was added to supply possible future industrial purposes. These 2 items amount to a total of 7,800 acre-feet of capacity. That portion of the contingent replacement capacity in the reservoir which in the future might not be required for replacement purposes can also be used for other purposes.

The total required capacity for all the uses which I have described is 24,100 acre-feet, which may be compared with the 28,000 acre-foot capacity that will be provided in the reservoir. It was the conclusion of the Engineering Advisory Committee, and it is my conclusion, that the 28,000 acre-feet of capacity to be provided for in the Aspen Reservoir is more than ample for replacement purposes.

I have had my office review in detail the unit prices used by the Bureau of Reclamation in estimating the cost of construction of the Fryingpan-Arkansas transmountain diversion project. In general, it is our conclusion that the unit prices are adequate, based on present-day construction costs.

It is my conclusion, after having been intimately identified with the evolution of the project as a member of the Engineering Advisory Committee of the Policy and Review Committee, that the project is well conceived from an engineering standpoint, and that it will provide the maximum possible benefits from the water supplies made available by it. The project is multiple-purpose—the benefits that will result from its operation include the generation of hydroelectric energy, the provision of supplemental irrigation water supplies and needed municipal water supplies, the reduction of flood damages between Pueblo and the Caddoa Reservoir, and the prolongation of the life of some of the lower reservoirs by silt detention in the Pueblo unit of the project. From the standpoint of need for the project, and the engineering feasibility of it, I strongly urge its authorization.

Mr. TIPTON. I would like to indicate to the members of the committee the work that the interests in the Arkansas River Basin have done in their own behalf over a long period of years.

The Arkansas River Basin as well as an all-eastern slope basin of Colorado developed very rapidly in the 1870's, 1880's and 1890's. Before the beginning of the century all the basic water supplies were appropriated and being utilized. Great need developed at that time for supplemental water supplies. The logical source of such supplies was the construction and operation of reservoirs to store flood-waters to make those waters available when the natural water supply was short.

Such development did take place in the Arkansas River Basin by private initiative, community effort, and during the 1890's and early 1900's there were some 38 reservoirs with an aggregate storage capacity of 634,000 acre-feet constructed. By that time all of the storage potential that was within the ability of the private interests to construct had been constructed. There was still great need for supplemental water supplies for the area then being irrigated. It has already been testified to by another witness that there has been an actual decline in the irrigated area in the valley because of shortage of water.

The next most feasible source of supplemental water supplies was the bringing into the area of water from west slope streams, water from the Colorado River Basin. Again by private initiative, and community effort, water was sought from that source. Six small diversions, diverting an aggregate of 7,000 acre-feet per year having a potential of 13,000 acre-feet had been constructed by 1935.

The State engineer in cooperation with local interests engaged in stuides of diversions of greater capacity. One, the Taylor Park, which, if it had been constructed—and it would have been except for an incident I will describe to the committee—would have diverted 120,000 acre-feet per year. There was considerable support in the valley for that diversion and plans were being made to finance it when there was authorized for construction the Taylor Park Reservoir on the same stream from which the diversion would have been made which made that diversion infeasible.

Immediately after the Reconstruction Finance Corporation was created the Twin Lakes Reservoir & Canal Co. sought funds and obtained them for constructing what is known as Independence Pass transmountain diversion about which much has been said here and I will not go into it except to clear up some phases about which there is some confusion.

I want to clear up some dates on that. The funds were obtained in 1932, the project was completed in 1935.

It has diverted an average of 35,000 acre-feet per annum and has a potential of 53,000 acre-feet.

In the meantime the so-called 308 studies were being prosecuted over the country by the Corps of Engineers. A "308" study was made of what is now the Caddoa Reservoir in Colorado, and there was then constructed the first federally financed project in the eastern slope of Colorado, the Caddoa Reservoir with a capacity of 655,000 acre-feet which makes a total reservoir capacity in the basin of 1,289,000 acre-feet.

Mr. ASPINALL. Are there any irrigation benefits from the Caddoa Reservoir?

Mr. TIPTON. Yes, large.

Mr. ASPINALL. And, Mr. Tipton, have those ever been chargeable to the users?

Mr. TIPTON. Never. That was a 100 percent gift to Colorado.

Mr. ASPINALL. The reason I ask this is that I agree with you in that everything that has been done in the Arkansas River practically has been done by private enterprise, but that is true in northeastern Colorado, it is true in western Colorado, and it is true in practically every other Western State that I know anything about. Folks in

Arkansas Valley are no different than anybody else except that they have expended all of their efforts and all of their possibilities as to the development of their own area.

They do not have the money to go further and they must come to the Federal Government to do it; is that correct?

Mr. TIPTON. That is correct.

Mr. ASPINALL. And they have received benefits down there directly and indirectly by the use of Government money, all of which is nonreimbursable.

Off the record.

(Discussion was continued off the record.)

Mr. TIPTON. The Caddoa Reservoir is located immediately below the town of Las Animas on the Arkansas River in Colorado, and a short distance above the town of Lamar. It is a multiple-purpose reservoir and has a capacity of 655,000 acre-feet of which 400,000 acre-feet is for regulatory purposes for the benefit of water users both in Colorado and Kansas. It provides only supplemental water supplies. There has been no new land irrigated as a result of it. The other 255,000 acre-feet is for flood control.

Mr. DAWSON. And none of that was reimbursable?

Mr. TIPTON. No, sir. There were two projects of the same nature that were authorized for construction at about the same time as PWA projects, the Caddoa in the Arkansas Valley and Conchas project on the Conchas River, in New Mexico.

Those are the only two in the United States that I know of with that kind of history.

To answer somewhat more fully or comment somewhat more fully on Congressman Aspinall's statement about the need for Federal funds for further irrigation development of the Colorado, I would like to read an excerpt from a paper I prepared 3 or 4 years ago on water-use problems in Colorado. It does appear in this statement that I filed. This applies to the Arkansas River Basin and the present situation.

I quote:

> A new era in water development has commenced which involves the construction of multiple-purpose projects to supply new lands with irrigation water and to provide supplemental water supplies for existing irrigated land and, in some cases, to make more useful the water that is already being used. Such projects include not only features for supplying irrigation water but also for generating hydroelectric energy, for flood control, and for other benefits. The remaining projects are so expensive and so involved both from a physical standpoint and from the standpoint of human relations that they are beyond the ability of individual irrigation districts or mutual ditch companies to construct. It is also beyond their ability, acting alone, to resolve many of the human relations problems which must be resolved before such projects can go to construction. Whole river basins or major portions thereof, including the municipalities and all industries that will be benefited by such developments, will be called upon to pay their fair proportion of the costs of such projects. Both the Bureau of Reclamation and and the Corps of Engineers are being utilized to investigate such major projects in Colorado, and to prepare plans and specifications and supervise the construction of those which have been authorized for construction by those agencies. The Colorado Water Conservation Board, created by special act in 1937, is actively cooperating with the Bureau of Reclamation, the Corps of Engineers and other governmental agencies, as well as State agencies and various local organizations, in planning the water development program for Colorado.

So it is that era in which the Arkansas River Basin finds itself and as a result of the situation it asked several years ago aid from the Bureau of Reclamation. Because of the east slope-west slope situa-

tion there was created by the Colorado Water Conservation Board the Policy and Review Committee about which much has been said by other witnesses.

I was a member of that committee. The committee, in turn, caused to be created an engineering advisory committee. I was chairman of that committee. The engineering advisory committee as the plans for the project were being evolved by the Bureau of Reclamation kept in close touch with the Bureau. It made a number of suggestions. The Policy and Review Committee had the full benefit of the advice from many agencies including the game and fish agencies of Colorado and of the United States. As a result of the apparent requirements for the fish, certain changes were made in the plans of the project.

The engineering advisory committee reviewed the water supply for the project, suggested certain modifications in figures, reviewed the amount of the estimate on hydroelectric energy, reviewed the needs for the water on the east slope, and went into great detail in determining the need for replacement reservoir capacity on the western slope.

We have, in the State of Colorado, what we call a Water Conservation District Act. In order to protect the west slope, potential water use which might be impaired by the operation of the transmountain diversion the Water Conservancy Act of Colorado provides the following which also is incorporated in the rules for operating the Fryingpan-Arkansas project which were agreed upon by west slope and east slope interests.

I am reading from page 7 of my prepared statement:

* * * *Provided, however,* That any works or facilities planned and designed for the exportation of water from the natural basin of the Colorado River and its tributaries in Colorado, by any district created under this chapter, shall be subject to the provisions of the Colorado River compact and the Boulder Canyon Project Act, as amended; that any such works or facilities shall be designed, constructed and operated in such a manner that the present appropriations of water, and in addition thereto prospective uses of water for irrigation and other beneficial consumptive-use purposes, including consumptive uses for domestic, mining and industrial purposes, within the natural basin of the Colorado River in the State of Colorado, from which water is exported, will not be impaired nor increased in cost at the expense of the water users within the said natural basin; and that the facilities and other means for the accomplishment of said purpose shall be incorporated in, and made a part of, any project plans for the exportation of water from said natural basin in Colorado.

The most feasible unit to accomplish this purpose was the Aspen Reservoir about which there has been some testimony given.

That reservoir will have a total capacity of 28,000 acre-feet. The true replacement capacity for the summer diversion of the Fryingpan-Arkansas project is only 3,100 acre-feet. That is taking into consideration the present use from the point of withdrawing water from the Fryingpan down to the State line as well as potential use insofar as they can be estimated including 300,000 acre-feet potential consumptive use which may be required for industrial purposes below the mouth of the Roaring Fork. The committee has been told the Twin Lakes or Independence Pass transmountain diversion cannot at the present time divert its full potential because it does not have enough east slope capacity to retain that water.

As part of the plan, the Twin Lakes Reservoir was to have been enlarged. Consideration has been given to it since but that has been

held in abeyance until the Twin Lakes Co. find out what happens to this particular project.

In anticipation of the diverting of the full potential of the Twin Lakes project and in order to permit that to be done as against prior users on the west slope and to protect future use on the west slope there was included in the Aspen Reservoir an increment of storage of 6,100 acre-feet. There is a contingent replacement capacity in the reservoir of 7,100 acre-feet which is to take care of something which might not happen. That is winter diversions from the Fryingpan which might be difficult, and to take care of a small increment of water that might in the future become a part of the larger Gunnison River transmountain diversion project.

There remains in the reservoir a capacity of 11,700 acre-feet which can be used for other purposes on the west slope including the supplying of natural shortages in water supply at or near Aspen and the supplying of possible future industrial use.

I have had my office review in detail the unit prices used by the Bureau of Reclamation in estimating the cost of construction of the Fryingpan and transmountain diversion project. In general, it is the conclusion of my office that the unit prices are adequate based on present-day construction costs. As a matter of fact some of the features we believe are overestimated particularly the treatment plant for domestic water.

I want to clear up 1 or 2 items that there seems to be some confusion about. One item is the question of the ability of the potential water users to repay that portion of the cost which is set up in the Bureau of Reclamation report to be repaid by them.

I want to call the committee's attention to the procedure that will be followed if the project is authorized. There will first be organized a water conservancy district under the act of which I read an excerpt. That district will cover the area benefited by the project and will have to be organized under the statute by petition. There will then be negotiated between the officials of the district and the Bureau of Reclamation the terms of a repayment contract which will be submitted to the electors of the district for vote. If the vote fails, the project cannot go forward. It is at that time then when there will be an expression on the part of the water users as to whether they are willing to comply with the terms of the repayment contract.

The next step if the election is favorable will be the negotiation by the district itself—the district officials—with every water user in the district who desires water, individual water-use contracts. Those individual contracts will provide the terms of payment by the individual water user whether he be municipal or agricultural. So before construction commences on the project or possibly before appropriations would be made by the Congress that procedure will have been gone through and there will be a plain indication as to whether the beneficiaries of the project are willing to obligate themselves to pay their part of the cost.

Mr. ASPINALL. Do you suggest a request for appropriation be made?

Mr. TIPTON. I am not suggesting.

Mr. DAWSON. Isn't it customary that most of these conservancy districts are formed even before they have the bill passed?

Mr. TIPTON. I think it can be done either way. In this particular instance there has been a voluntary association in the area, a very strong one, that is sufficiently strong for everyone to do business with. The organization spoke for——

Mr. DAWSON. I thought it was the policy of the Bureau to get firm commitments in the district before they would even come in.

Mr. TIPTON. I do not think that is the policy. It is the policy to have the repayment contract negotiated with a district that is acceptable to the Bureau. This particular type of district is acceptable to the Bureau.

Congressman Dawson, is there still confusion in your mind about the Roaring Fork fish? I might clear that up a bit, not the cost—I am not testifying as to whether it is worth that much, but I can testify as to what the project would do if there is any remaining doubt in your mind as to physically what it would do.

Mr. DAWSON. You might answer this question. Will it propagate any more fish than they already have?

Mr. TIPTON. Yes, sir.

Mr. DAWSON. How many more?

Mr. TIPTON. I do not know; I am not a fish expert.

Mr. ASPINALL. Where?

Mr. TIPTON. On the tributaries of the Roaring Fork from which the Twin Lakes project derives its water supply, the existing project, the project financed and constructed by local interests. That project has a decree which does not recognize fish, it recognizes only existing use on the west slope.

If the Fryingpan-Arkansas project is not authorized and not constructed, the Twin Lakes Reservoir & Canal Co. in my opinion without question will enlarge its Twin Lakes Reservoir on the east slope.

It will then be able to exercise the full potential of its transmountain diversion and——

Mr. HOSMER. How much water on the average does Twin Lakes bring across?

Mr. TIPTON. It has brought across an average of 35,000 acre-feet. It has an average potential of 53,000 acre-feet.

Now I think, Congressman, at the moment fish in some of those tributaries is being interfered with. It is certain if they go forward with their own development they will be interfered with. So in order to prevent that, as one feature of the Fryingpan-Arkansas project some facilities were added.

Collection canals were extended in length so that the additional water which the Twin Lakes Reservoir & Canal Co. could divert and would divert from its own watershed will not be diverted. It will be left in the stream to maintain the fish, some may be restored, and that water will be transported by this project down to the Twin Lakes Reservoir.

In that fashion the fish are protected as against the act of the private interests.

That is a physical situation. I am not testifying as to whether it is desirable or undesirable.

Mr. HOSMER. Hasn't it been going on, the Twin Lakes diversion, for the last 23 years?

Mr. TIPTON. Yes, that project was completed in 1935.

Mr. HOSMER. We are not talking about any fish that died yesterday.

Mr. TIPTON. No, but we can be talking about some that may be dying 5 years from now.

Mr. HOSMER. I have got another question on that. You are going to bring this water down to this Twin Lakes area and it is going to go into the Twin Lakes project there. Who is going to get the revenues out of that?

Mr. TIPTON. Who is going to get what?

Mr. HOSMER. Revenues. All the revenues from this 18,000 additional acre-feet of water a year going to the Twin Lakes operators? As I understand it, you are taking water from some place else on the west slope to this Twin Lakes diversion?

Mr. TIPTON. Yes.

Mr. HOSMER. So that Twin Lakes can take 18,000 additional acre-feet from wherever its sources are?

Mr. TIPTON. They can do that now.

Mr. HOSMER. They don't do it because they can't dry up, don't want to dry up, water?

Mr. TIPTON. That is not the point.

Mr. HOSMER. That is where I am confused.

Mr. TIPTON. That is where the confusion is. Let's take it step by step and clear it up. I happened to be consulting engineer for the Twin Lakes people and helped work up those plans, so I am fairly familiar with it.

Mr. HOSMER. You are all over this area.

Mr. TIPTON. As has been explained, the Twin Lakes irrigated area, and it is quite an old area, is located on the Arkansas River near the town of Ordway. It involves some 60,000 acres of lands, about 54,000 acres of which are irrigated. It has a number of reservoirs within its own area.

Then in the early 1900's it constructed the Twin Lakes Reservoir on Lake Creek, which is a tributary of the Arkansas River entering the Arkansas River a few miles below the city of Leadville. That reservoir was a natural lake; it was a twin lakes. Much of its capacity was developed by excavating an outlet. At the time the Twin Lakes transmountain diversion was conceived, by reservoir and operation studies on the east slope we concluded that to make full use of the water that could be physically diverted by the new transmountain diversion, the Twin Lakes Reservoir & Canal Co. would have to have additional reservoir capacity. We contemplated just about doubling the capacity of Twin Lakes. That was a feature of the original plan.

Such second stage feature was never accomplished. So there are times when water is available to the transmountain diversion and the Twin Lakes entity does not bring that water across because there is no place to put it. It would flow down the river. It would go into the Caddoa Reservoir. Before the Caddoa Reservoir was constructed it would have gone into the State of Kansas.

Mr. HOSMER. They do not fail to bring it across because they are taking too much water from the reservoir but because they do not have the storage capacity?

Mr. TIPTON. That is right.

Mr. HOSMER. In your testimony I think you said you thought that the Twin Lakes people would go ahead with this enlargement.

Mr. TIPTON. That is right.

Mr. HOSMER. It is not a part——

Mr. TIPTON. It is a part of this project.

Mr. HOSMER. The project will pay for it.

Mr. TIPTON. The project will pay for part of it.

Mr. HOSMER. There is no firm arrangement?

Mr. TIPTON. No.

Mr. HOSMER. I still do not understand about bringing this other water down on the west slope.

Mr. TIPTON. I will explain that. Going a little further on there——

Mr. HOSMER. Not for the purpose of giving Twin Lakes more water?

Mr. TIPTON. No. Let me explain that. The originally contemplated collection system for the Fryingpan-Arkansas project was extended somewhat so that its diversion ability was increased to the extent that there could be left in the tributaries, intercepted by the Twin Lakes project, sufficient water to take care of the fish and that additional increment of water will be brought down and stored in Twin Lakes Reservoir which is an essential part of the Fryingpan-Arkansas diversion completely aside from its being an essential part of the Twin Lakes system.

Mr. HOSMER. That extension, the real purpose is to take care of the Aspen water?

Mr. TIPTON. To take care of the fish life in the vicinity of Aspen.

Mr. HOSMER. Even if there were not any fish up there, in order to take care of the needs of Aspen you would have——

Mr. TIPTON. The needs of Aspen, the existing needs of Aspen, would be prior to the Twin Lakes transmountain diversion. It could not divert against——

Mr. HOSMER. That is right. Aspen is an alternate source of water.

Mr. TIPTON. Aspen by virtue, Aspen and vicinity by virtue of the operation of the Aspen Reservoir will have very much more water, very much more usable water, than they have at the present time so far as the quantity is concerned.

Mr. HOSMER. But if it were not for the extension you mentioned, the Aspen supply would suffer along the tributaries.

Mr. TIPTON. There would be sufficient water for Aspen but the fish would suffer immediately below the collection systems.

Mr. ASPINALL. If my colleague will yield, Aspen cannot suffer; Aspen has used water longer than any other user in that area and therefore they must let enough water go down to take care of them.

Mr. HOSMER. That is what I meant, they have to make it up to Aspen somehow. You, sir, testified you had gone over the cost figures on this project?

Mr. TIPTON. The unit costs, yes.

Mr. HOSMER. What do you mean by that, for each of these various projects?

Mr. TIPTON. No. The unit cost for each item of work, for example, excavation, concrete, fill for dams, placing reinforcement steel, gates, and the unit costs of other items of work.

Mr. HOSMER. Do you feel that if this whole project were let out on a bid that it would be bid cheaper than one hundred seventy-two-million-some-odd-thousand dollars?

Mr. TIPTON. That is our conclusion.

This is off the record.

(Discussion was continued off the record.)

Mr. HOSMER. I would like that statement on the record.

Mr. TIPTON. It is on the record.

Mr. HOSMER. How much do you think it would be reasonable that that figure could be shaved?

Mr. TIPTON. I can read a short memorandum prepared by two of my staff that we use on this kind of method, for estimating purposes.

Mr. HOSMER. All right.

Mr. TIPTON (reading):

> The total estimated cost appears to be adequate. While there are single features that have definitely low unit prices and others that have definitely high unit prices, these appear to balance each other. In making an examination no account was taken of the contingency items which vary from 20 to 25 percent. This amount for contingencies appears to be normal and should be set up for construction. On each individual estimate sheet has been indicated our opinion of each unit price. Due to the lack of sufficient information we would not be able to make a check of the electric power distribution features.
>
> For comparison, attached are shown recent bids on some large features similar to those of the project.
>
> No examination was made of the administration and engineering costs.

Signed by Robert G. Crabtree and J. H. Sanford dated June 5, 1953.

If there are no other questions, Mr. Chairman——

Mr. DAWSON. Whom do you represent?

Mr. TIPTON. I am appearing for the Colorado Water Conservation Board in my official capacity as consulting engineer. If there are no further questions, Mr. Chairman, I would like to make one concluding statement.

My conclusion is, after having been intimately identified with the evolution of the project as a member of the engineering advisory committee of the policy and review committee, that the project is well conceived from an engineering standpoint, and that it will provide the maximum possible benefits from the water supplies made available by it. The project is multiple-purpose—the benefits that will result from its operation include the generation of hydroelectric energy, the provision of supplemental irrigation water supplies and needed municipal water supplies, the reduction of flood damages between Pueblo and the Caddoa Reservoir, and the prolongation of the life of some of the lower reservoirs by silt detention in the Pueblo unit of the project. From the standpoint of need for the project, and the engineering feasibility of it, I strongly urge its authorization.

Mr. HARRISON. Thank you.

Who is the next witness?

Mr. CHENOWETH. Mr. L. R. Patterson of Denver, assistant to the vice president of the Public Service Co. of Colorado in charge of electrical operations. He will also speak for the Southern Colorado Power Co. on the purchase and distribution of power to be generated by this project.

STATEMENT OF L. R. PATTERSON, ASSISTANT TO THE VICE PRESIDENT OF PUBLIC SERVICE CO. OF COLORADO, IN CHARGE OF ELECTRICAL OPERATIONS, DENVER, COLO.

Mr. PATTERSON. I am L. R. Patterson, assistant to the vice president in charge of electrical operations, Public Service Co. I have a statement here that I would like to introduce for the record, Mr. Chairman, which is a joint statement of the company which I represent and the Southern Colorado Power Co.

Mr. HARRISON. Is this the one you will testify from?

Mr. PATTERSON. Yes. I will not read this statement but I wish to offer some comments and also to offer a proposal which we wish to make. That was mentioned this morning, I believe, by Mr. Aandahl. I will not spend any time on the need for additional water on the eastern slope because others have shown that.

However, I would like to point out how the powerplants proposed in connection with the Fryingpan-Arkansas are related to our transmission system and that of the Southern Colorado Co.

Mr. HARRISON. Without objection, your report will be made part of the record.

(The statement follows:)

STATEMENT OF PUBLIC SERVICE CO. OF COLORADO AND SOUTHERN COLORADO POWER CO. RE FRYINGPAN-ARKANSAS PROJECT, COLORADO

The following is a joint statement of Public Service Co. of Colorado, Denver, Colo., and Southern Colorado Power Co., Pueblo, Colo., sometimes herein referred to as the companies, in connection with the proposed Fryingpan-Arkansas project.

In the area adjacent to the proposed project, Public Service Co. of Colorado furnishes electric service in the upper Arkansas Valley in Leadville and Salida, Colo., and contiguous areas. Southern Colorado Power Co. supplies electric service in the portion of the Arkansas Valley in Colorado extending from Canon City to the vicinity of La Junta, Colo.

These companies, therefore, are directly interested in the proposed Fryingpan-Arkansas project and the development of hydroelectric power in connection therewith.

The State of Colorado has an area of 103,967 square miles, approximately three-fifths being mountainous. In 1950 its population was 1,325,089, an average of approximately 13 people per square mile. Its area approximates that of the combined States of New York, Pennsylvania, New Jersey, and Delaware, with a population in excess of 30 million or about 23 times the population density of Colorado. By reason of its mountainous terrain and limited rainfall, its population is concentrated in cities, towns, and irrigated areas.

The State has an abundance of rich soil and is handicapped only by the limitations of its water supply. The limited amount of precipitation during the growing seasons must be supplemented by irrigation. Basically, this region has an agrarian economy and its productivity, development, and ability to contribute to the national welfare in this respect is limited to the extent that additional water can be made available.

Our companies believe it is only sound economics to develop incidental by-product hydroelectric power in connection with reclamation projects when power generation is economically feasible. Such hydroelectric generation should always be subordinate to the primary purpose of supplying needed irrigation and domestic water. We do believe, however, that it is highly inappropriate for the Government to construct transmission lines where such facilities can be provided by private capital and where existing facilities can be used.

COMPANIES HAVE A PROPOSAL

In making this appearance and presenting this statement before the committee, it is the purpose of the companies to offer a constructive proposal which will (1) reduce the cost of the project by utilizing existing transmission lines and by the companies constructing any necessary additional transmission facilities; (2) improve the economics of the project by providing more net revenue; and (3) provide a plan for the equitable sale and disposition of the project power within the general project area.

We intend to show that our proposal will assure the most dependable and efficient operation of the power generating facilities of the project and will assure substantial benefits to all concerned. Before explaining the companies' proposal and showing how these benefits will be obtained, a brief description giving the location of the hydroelectric stations of the project with relation to the companies' systems and a statement of the expansion programs of the companies is presented.

The propo ed plan for the Fryingpan-Arkansas project includes the construction of 6 hydroelectric generating stations in the upper valley of the Arkansas River

between Leadville and Salida, Colo., and 1 hydroelectric generating station on the Arkansas River adjacent to the city of Pueblo.

The Public Service Co. of Colorado presently has a 115 kilovolt transmission line which parallels the Arkansas River between Leadville and Salida, Colo. The 6 hydroelectric generating stations of the project mentioned above are immediately adjacent to this line. This line, in addition to interconnecting the Leadville service area of the company with the Salida service area, is an integral part of the backbone transmission system of the company. The company and its predecessors have rendered electric service in these areas for more than 45 years meeting all service requirements. The power plant proposed to be constructed near Pueblo is in the heart of the service area of the Southern Colorado Power Co. where this company has served for more than 42 years.

PUBLIC SERVICE COMPANY OF COLORADO

The central system of the Public Service Co. of Colorado extends from the Greeley area in north central Colorado southward to the Denver metropolitan area and thence westward to the Leadville area. From Leadville the system has 2 branches, 1 extending westward to the Grand Junction area and 1 extending southward past the city of Salida into the San Luis Valley almost to the New Mexico State line.

As of December 31, 1952, the electric power requirements of the central system were supplied from 6 steam electric generating stations with a total capability of 344,200 kilowatts and 8 hydroelectric generating stations with a combined capability of 38,050 kilowatts making a total system capability of 382,250 kilowatts. These 14 generating stations are interconnected with each other and with the principal load centers of the company by approximately 850 miles of high voltage transmission lines. From this extensive system the company was serving at the end of 1952, 219,478 electric customers. In addition the company was supplying electric energy at wholesale to 3 private electric utility companies and 3 municipal systems which in turn supplied service to many thousands more electric customers.

The Public Service Co. of Colorado has a wheeling contract with the Federal Government in connection with the Colorado-Big Thompson project under the terms of which the company's transmission system is being used to supply electric energy from that project to 5 REA systems at 16 points of delivery and to 1 municipal system. Four of these five REA systems have points of delivery relatively adjacent to the Fryingpan-Arkansas project.

Since the end of World War II, the company has made expenditures of nearly $70 million to expand the facilities of its electric system. This has included major additions to 3 of its existing generating stations and 1 new steam electric generating station. The addition of these facilities has doubled the generating capability of the company during the past 7 years. During the same time, the company has built 200 miles of high-voltage transmission lines.

At the present time, the company has 3 steam electric generating projects going forward, 2 of which are scheduled for completion at the end of this year which will add 76,000 kilowatts of generating capacity and the third project scheduled for completion in 1955 will add an additional 100,000 kilowatts of generating capacity. Thus, at the end of 1955, the company will have 558,250 kilowatts of generating capacity on its central system, a 200-percent increase since the end of the war. Several transmission line projects are also under construction and planned to keep pace with generating capability.

SOUTHERN COLORADO POWER CO.

The Southern Colorado Power Co. supplies retail electric service in Teller, Fremont, Custer, Pueblo, Crowley, and Otero Counties of Colorado. The communities served are in or adjacent to the Arkansas River Valley and in general the system extends from Canon City on the west to La Junta on the east. A branch of the system supplies service to the Victor-Cripple Creek district in Teller County. As of December 31, 1952, the power requirements of the system were supplied from 3 steam electric generating stations and 1 small hydroelectric plant.

The total capability of all generating stations was 60,000 kilowatt. These stations are interconnected by a system of transmission lines which in turn supply service to the system load centers and the transmission network consists of approximately 375 miles of 115-kilovolt, 69-kilovolt, and 24-kilovolt circuits.

At the end of 1952, the company was supplying retail electric service to 41,500 customers in the area. Service also was supplied on a partial basis to the city of Las Animas. A 115-kilovolt transmission line was completed between

Pueblo, on the company's system, and the municipality of Colorado Springs in late 1952. This line permits the interchange of energy between the company's system and the municipally owned distribution system of Colorado Springs and also provides reserve capacity for both.

Southern Colorado Power Co. also supplies wholesale electric service to 3 rural electric cooperative systems at 6 different points of delivery. These systems in turn, of course, furnish retail service to several thousand rural customers in the area.

For the past 10 years the company has made expenditures totaling approximately $11 million for the purpose of expanding its facilities. Included in this program was a new steam generating unit installed in the Pueblo plant in 1949 and an entirely new steam electric station at Rocky Ford put in service in early 1951. These units have provided full capacity for the load requirements of the area and additions to substations, distribution systems and other facilities have enabled us to provide excellent service at all times with completely adequate reserve capacity.

At this time, the company has under construction a 115-kilovolt transmission line between Pueblo and Canon City which will supplement an existing 69-kilovolt line between these two load centers. An additional transmis ion circuit between Rocky Ford and La Junta is planned for 1954. Preliminary estimates are in preparation covering the possible installation of a new 15,000-kilowatt generating unit on the system. When this unit is installed, generating capability of the system will have been increased 138.5 percent since 1943.

Proposal of Public Service Co. of Colorado and Southern Colorado Power Co.

A. The companies propose to make available their existing transmission facilities and to construct, operate, and maintain at their own expense all additional transmission facilities necessary to market within and adjacent to the project area, the electric power and energy produced by the Fryingpan-Arkansas project.

B. All power and energy from the project to be sold at the 115-kilovolt plant bus bar at the time the power becomes available with preference given to those customers entitled thereto, such customers to contract either directly with the Federal Government or the companies in accordance with the policy of the Department of the Interior as ultimately determined. The total of firm-power contracts not to exceed the capability of the project as interconnected with other Bureau projects in the area and as mutually agreed upon by the Department of the Interior and the companies.

C. The companies agree to purchase under long-term contracts all firm power and energy in excess of that contracted for by the preference customers and not otherwise sold or utilized. In addition, the companies agree to contract for such secondary and dump energy and excess generating capacity as the project may have available and not otherwise sold or utilized. Under such plan the project will be assured of the maximum continuous revenue from the time of its completion.

D. The companies agree to accept delivery of power and energy from the project into their transmission systems and to make delivery of an equivalent amount of electric power and energy (adjusted for losses) to the preference customers at delivery points on the companies' transmission systems at voltages of 69 kv. and higher or as mutually agreed upon by the companies and the preference customers. For this service the companies receive compensation to cover the cost of delivery subject to the approval of the Public Utilities Commission of Colorado.

E. The companies agree to the extent that they have capacity available above their own requirements to supply power and energy as standby to the preference customers in the event of inability of the project to meet the customers' contract requirements due to outages or reduction in generation caused by failure of project mechanical and/or electrical facilities.

F. In the event the preference customers in subsequent years require firm power and energy in excess of that supplied from the project or if standby other than that provided in paragraph E above is required or desired, the companies agree to supply these requirements from their own generating facilities at wholesale rates approved by the Public Utilities Commission of Colorado.

Contemplated Construction Program To Facilitate Marketing of Electric Power From Fryingpan-Arkansas Project

The companies propose to completely integrate the operation of their existing generating facilities with those of the project so as to obtain the most dependable and economical operation of the combined systems. The companies will make

available their existing transmission facilities to deliver project power to existing preference customers within and adjacent to the project area. Furthermore, they will construct or cause to be constructed additional transmission facilities when and as required for marketing electric power and energy from the Fryingpan-Arkansas project. A preliminary analysis indicates that the following transmission facilities may be required prior to or at the time of completion of the project:

1. A second 115-kv. transmission circuit from Leadville to Poncha Junction.
2. Two 115-kv. transmission circuits from Poncha Junction to Canon City.
3. A second 115-kv. transmission circuit between Canon City and Pueblo.
4. A 115-kv. transmission circuit from Pueblo to La Junta.
5. Complete a second 69-kv. transmission circuit from Pueblo to La Junta.
6. Necessary switching facilities and transformers to interconnect the new facilities with the existing transmission facilities of the two companies.

BENEFITS OF COMPANIES' PROPOSAL

The proposal by the Public Service Co. of Colorado and by the Southern Colorado Power Co. to provide all additional transmission facilities necessary for the marketing of the electric power developed in connection with the Fryingpan-Arkansas project offers substantial benefits to the following groups:

A. The Federal Government and the Federal taxpayers.
B. The State and local governments and their taxpayers.
C. The Arkansas Valley water users.
D. All project power users including customers of the companies.

Benefits to Federal Government and Federal taxpayers

The Federal Government and its taxpayers will receive a two-fold benefit from the companies' proposal. First, there will be a reduction of approximately $6 million in the construction cost of the project. Second, there will be estimated annual savings to the project of $414,000 which will be available for repayment of the project.

The reduction in construction cost of the project results from the elimination of the following items of construction from the project plan as set forth in Project Planning Report No. 7–8A.49–1.

115-kv. transmission lines	Length	Estimated construction cost
	Miles	
Dillon-Elbert	51	$755,000
Elbert-Otero	11	127,000
Otero-Wapaco	7	104,000
Wapaco-Princeton	15	174,000
Princeton-Poncha	7	80,000
Poncha-Salida	3	35,000
Saguache-Salida	47	494,000
Salida-Pueblo	97	1,124,000
Pueblo-Colorado Springs	44	439,000
Colorado Springs-Limon	73	727,000
Total transmissions eliminated	355	4,059,000

Substations	Capacity	Estimated cost
Dillon	Interconnection	$99,000
Leadville	15,000 kilovolt-amperes	118,000
Salida	5,000 kilovolt-amperes	85,000
Saguache	10,000 kilovolt-amperes	149,000
Canon City	15,000 kilovolt-amperes	302,000
Pueblo	25,000 kilovolt-amperes	205,000
Colorado Springs	30,000 kilovolt-amperes	925,000
Limon	Interconnection	75,000
Total substations eliminated	100,000 kilovolt-amperes	1,958,000
Total reduction in project construction cost [1]		6,017,000

[1] This is a direct savings to the taxpayers.

The reduction in annual costs will be made up of the following items based on estimates made by the companies' engineers:

Interest at 3 percent on $6,017,000	$180,510
Amortization (50 years 3 percent) 0.89 percent	53,551
Operation and maintenance, 355 miles line, at $150	53,250
Operation and maintenance, 100,000 kilovolt-ampere substation, at $0.45	45,000
Operation and maintenance, synchronous condenser	10,000
Interim replacements—transmission, 1.03 percent	41,808
Interim replacements—substation, 1.53 percent	29,957
Total annual costs saved [1]	414,076

[1] This savings is available to help repay project costs.

From the tabulation of transmission lines to be deleted from the project by the companies' proposal and by reference to the map included in this statement, it will be found that adoption of the companies' proposal eliminates approximately 220 miles of line which would be a duplication of existing lines and some 60 miles which would duplicate a proposed line of the companies between Poncha Junction and Canon City which is presently under consideration for interconnection purposes whether this project is built or not.

By making use of the companies' existing and planned transmission facilities in the project area, duplication of transmission facilities can be avoided, and there will be substantial savings to the Government and taxpayers in the overall cost of the project.

Benefit to State and Local Taxpayers

Should the transmission facilities for marketing the project power be constructed by the Bureau of Reclamation, they will not be subject to taxation by State and local taxing units. On the other hand, if the proposal of the companies is followed, some $4,500,000 of property will be placed on the tax rolls to help support schools, local and State government. This is one of the real advantages of participation in the project by local capital.

Benefits to Arkansas Valley Water Users

The real interest of the Arkansas Valley water users, whether domestic or agricultural, is to obtain additional water supply at a cost which they can afford to pay. Any plan, therefore, which aids the financial feasibility of the Fryingpan-Arkansas project without increasing the cost of water is a benefit to the water users.

The plan proposed by the companies improves the financial feasibility of the project by reducing the project cost by approximately $6,000,000 and reducing annual costs by some $414,000.

Benefits to project power users including customers of the companies

The marketing plan proposed by the Public Service Co. of Colorado and the Southern Colorado Power Co. has distinct advantages to the power users who may be supplied from the Fryingpan-Arkansas project. These may be briefly summarized as follows:

1. The plan proposed by the companies takes cognizance of the preference right of existing REA, municipal, and governmental agencies at the time the project power becomes available to the extent that such customers contract for the power.

2. Through the use of the existing and proposed facilities of the companies, widespread disposition of the project power can be accomplished immediately and without any duplication of facilities.

3. Reliability of service will be substantially enhanced under the companies' proposal for three reasons. First, the backbone transmission system throughout the Arkansas Valley area under the companies' plan will be double circuit whereas under the project transmission plan, this would be single circuit. This is a very important consideration since an outage of the single circuit line between Salida and Canon City would completely interrupt flow of project power to the lower valley. Second, the two companies have a very large operating and maintenance organization with long years of experience which will insure high quality of service. Third, the integration of the hydroelectric generating facilities of the project with the steam-generating facilities of the two companies will provide the most dependable service which can be obtained.

4. Integration of the facilities of the two companies with each other as well as with those of the project offers advantages by the pooling of reserve, thereby reducing total reserve capacity required, and by postponement of addition of some steam generating capacity. These advantages benefit all power customers.

COMPANIES' REQUEST TO THE COMMITTEE

In view of the savings and benefits of the companies' proposal as presented above, we respectfully request that the committee accept the companies' proposal to make available their transmission facilities and to construct additional transmission facilities as they are required and that the committee recommend that no authorization be given for construction of transmission lines by the Bureau of Reclamation in connection with this project provided that suitable wheeling or other similar contractual arrangements can be negotiated with these companies for the dispostion of the project power.

Respectfully submitted.

SOUTHERN COLORADO POWER CO.
By D. B. HYER, Jr., *President*
PUBLIC SERVICE CO. OF COLORADO
By I. E. LOISEAU, *President*

JUNE 1953.

Mr. PATTERSON. We have a map here which unfortunately is small for this room, but there is a map in the statement if you would like to look at it which is the same as this one.

(COMMITTEE NOTE.—The map referred to is not reproduced for this printed hearing but is on file with the committee.)

You will observe that the power plants between Leadville and Pancho Junction on our system are along a 115,000-volt line which we have. It is one of the main transmission lines of our interconnected power system.

The remaining hydroelectric generating station would be adjacent to Pueblo which lies along the transmission lines of the Southern Colorado Co. The proposal which we wish to make is that our transmission system and that of the Southern Colorado Power Co. together with such additional lines as may be necessary to market the power shall be used in lieu of the construction of a transmission system by the Bureau of Reclamation.

Now we believe that this offer has some very definite advantages. In the first place it will reduce the amounts of money that the Government will have to invest in the Fryingpan-Arkansas project.

In the second place it will reduce the annual operation and maintenance expense because the project will not have to operate these lines. We have estimates of that savings included in our statement.

In connection with the marketing of this energy we will recognize the preference of all customers who are entitled to preference under the law. We are at the present time wheeling energy from the Colorado-Big Thompson to REA's and so we have had experience in this business. We are not offering something that we do not know what we are getting into.

I believe the REA's to whom we are now wheeling are completely satisfied with the service they are receiving.

Another advantage is that the hydroelectric output from the Fryingpan-Arkansas will have our steam generating system to back up the energy that will be produced by the project.

Another advantage is that if the transmission lines are built by the Bureau of Reclamation, this property does not go on the tax rolls but if the transmission lines are constructed by our companies, this investment goes on the tax rolls and pays for our school districts and towns and counties in the State.

We believe this is an advantage which cannot be overlooked.

Our system is a very widespread system as you will notice. It extends over a large amount of the State and it reaches out into the very western end of the State.

Congressman Aspinall will be interested in that, it is an area he knows, it is his area. It reaches into the San Luis Valley and the system of the Southern Colorado Co. reaches eastward to the Arkansas Valley.

Within the last year a 115,000-volt interconnection was completed between Pueblo and Colorado Springs which is a municipal system and entitled to preference under the law.

We have an overlay on this map which we believe will show that our system will do everything that the proposed system of the Bureau will do so that we can reach the people who want to be served with this energy.

I am sure you will want to know as to whether or not we have the financial ability to go through with what we offer to do. I will just give you a very few facts and figures. Our two companies since the end of World War II have spent some $81,000,000 on new electrical system facilities. That is generation, transmission, and distribution. I want to point out in particular that since the end of the war we have more than doubled the amount of generating facilities which we have.

At the present time our two companies have a combined generating capacity of 442,000 kilowatts and the great majority of this is in steam. At the present time we have under construction 176,000 kilowatts, so that by the end of 1955 when these units are all in operation we will have a combined generating capacity of 618,000 kilowatts.

In my job with our company one of the responsibilities that I have is the planning for our future supply. I can assure you that I can state that we can make use of any and all energy which will be made available to us from the Fryingpan-Arkansas.

We will purchase it on the day that it becomes available whether it be firm, secondary, or dump; we will be able to purchase and utilize in our system every bit of it.

There is another advantage from our offer that the project will receive the maximum amount of revenue. I realize that we are squeezed here a little bit this afternoon on time and I have not gone over all the things that are in our statement but I would urge that you in particular read the details of our offer on pages 7 and 8 and I believe that you will find them of sufficient interest that you will be interested in the thing that we want to ask of your committee.

We respectfully request that the committee accept the company's proposal to make available their transmission facilities and to construct additional transmission facilities as they are required and that the committee recommend that no authorization be given for construction of transmission lines by the Bureau of Reclamation in connection with this project provided that suitable wheeling or other similar contractual arrangements can be negotiated with these companies for the disposition of the project power.

Now Mr. D. B. Hyer, who is the president of the Southern Colorado Power Co., is here and he may wish to add a word to this joint proposal of our two companies.

Mr. HARRISON. Thank you very much.

Mr. ASPINALL. The proposal you made is almost identical with what you made before?

Mr. PATTERSON. Yes, it is very close.

Mr. HARRISON. Is there anything, Mr. Hyer?

Mr. HYER. I have nothing to add.

Mr. CHENOWETH. We would like to offer as our next and last witness of the day, Mr. Lewis Amend, who is the president of the REA Cooperative Association of Colorado, and also president of the Southeast Colorado Power Association, I think the largest REA in the United States in point of area served.

STATEMENT OF LEWIS E. AMEND, ROCKY FORD, COLORADO

Mr. AMEND. Mr. Chairman and gentlemen of the committee; as a means of identification, my name is Lewis E. Amend. I live out from Rocky Ford, Colo., about 6½ miles where I own and operate an irrigated farm.

I am at present and have for the past 4 years served as president of Southeast Colorado Power Association, an REA cooperative with offices in La Junta, Colo.

For the same period, I have served as president of the Colorado State Association of Rural Electric Cooperatives and for a similar time have served as legislative chairman of region 7, which comprises the States of Wyoming, Nebraska, Kansas, and Colorado. These offices are elective and subject to the will of the rural people involved. I mention these only to emphasize the fact that the report, or testimony, I am about to give you, comes from the hearts and minds of rural people living in southeast Colorado.

I am here as a member of the delegation appearing before you in support of the Fryingpan-Arkansas project.

My personal part in the support of this project is the representation of three rural electric cooperatives which are very definitely within the scope of this great project and lying directly in the Arkansas Valley from the Continental Divide at Salida, east to the Colorado-Kansas line.

The systems mentioned are the Sangre de Cristo Electric Association at Salida, Colo., the San Isabel Electric Association, Inc., at Pueblo, Colo., and the Southeast Colorado Power Association at La Junta, Colo.

These 3 systems currently and collectively represent some 35,000 farm and ranch people including villages and small industries lying within their boundaries. These people are scattered over an area comprising at least one-fourth of the State of Colorado and living in 17 of its 63 counties and are all directly engaged in the production of the food and fiber so vital to our national defense and their own health and personal welfare.

There is at present a great and growing need for additional water, both irrigation and domestic, as well as a dire need for additional source and supply of electric light and power. I shall confine my statements to the latter.

These systems mentioned are currently supplying 23 million kilowatt-hours annually to 8,088 consumer members on over 5,366 miles of rural distribution lines and according to their several system studies they will ultimately require a firm power supply reaching well toward 60 million kilowatt-hours on over 19,000-kilowatt demand.

Their steady growth and rising demand has brought great stress on all available sources, to the point that we are and have been for some time very fearful of our future source of supply. Our principal supplier, the Southern Colorado Power Co., has indicated that upon the termination of our present contracts, they will no longer be able to

supply our needs and have suggested that we explore the possibilities of other sources of supply.

Unless some plans are made now for additional operating capacity, we cannot meet our needs.

Accordingly, the systems herein mentioned employed the Guernsey Engineering Co. of Oklahoma City, Okla., at the time to study all possible sources and methods of supplying our present and future demands.

This company, by its study has definitely concluded and established that beyond a doubt the most logical method is through establishment or construction of additional generating facilities.

If, however, these three systems join in the construction of such plants or plant, it will necessitate the borrowing of additional money from the Government for such construction.

These systems are neither anxious nor willing to incur further indebtedness since the Fryingpan-Arkansas, a multiple-purpose project, will meet all demands and supply all needs. It appears beyond all doubt or suspicion that this is the course that should logically be pursued.

From an average area coverage standpoint, the Sangre de Cristo system is now about 97 percent complete, the San Isabel 90 percent and the Southeast Colorado Power Association, 80 percent. This simply means that this part of the rural people have been reached by high-line service and does not mean that their increased use has been adequately provided for; this by no means implies that our job is nearing completion, our power requirements are growing year by year and demands are increasing continually.

By the end of 1953 these systems should be well along toward area coverage and based on a recent load survey, they will collectively show a firm load demand of 42,923,000 kilowatt hours by 1955; 51,486,000 kilowatt hours by 1958 and by 1963, 63,513,000 kilowatt hours.

Inasmuch as all present facilities are strained to capacity and eagerly viewing the vast hydro potential created and sustained by the Fryingpan diversion plan set forth by the Bureau of Reclamation, we respectfully submit the following facts and figures in support of the said Fryingpan-Arkansas project and request all due consideration be promptly given to rural power needs as well as urban and industrial loads.

I attach these figures to my statement as an exhibit, as follows:

Sangre de Cristo Electric Association, Inc., Salida, Colo.

Year	Miles of line	Kilowatt-hours purchased	Cost per kilowatt-hour	Total members Dec. 31	Farm members served	Average kilowatt-hour usage, farm	Average bill, farm
1942	16	1,647,000	$0.0101	246	23	40.58	$4.29
1943	16	2,304,000	.0099	253	23	51.74	4.32
1944	17	1,125,000	.0105	490	27	54.11	4.25
[redacted]		9300	.5376				
1945	122	2,561,400	.0103	549	150	61.51	4.66
1946	130	2,350,440	.0106	918	170	81.26	5.17
1947	226	2,456,328	.0131	956	248	88.42	5.31
1948	232	1,955,016	.0149	1,003	259	113.49	6.13
1949	332	1,857,084	.0142	1,006	290	132.69	7.42
1950	364	2,166,900	.0118	1,038	336	144.85	7.57
1951	441	2,187,864	.0090	[1] 977	379	157.00	7.29
1952	460	2,497,950	.0093	[2] 998	413	190.00	7.48

[1] This does not include 57 cabins connected only during the summer and not connected as of Dec. 31, 1951.
[2] Same as above, 62.

Southeast Colorado Power Association, La Junta, Colo.

Year	Kilowatt hours purchased	Total cost, kilowatt hours	Cost per kilowatt hour	Total members, Dec. 31	Farm members	Miles of line	Average kilowatt hour, farm	Average farm bill
1943	10,011,363	103,262.44	$0.0103	1,539	1,394	780	81	$4.72
1944	12,139,767	125,920.96	.0137	2,666	1,551	790	85	4.82
1945	10,835,348	108,190.71	.00998	3,007	1,737	1,139	103	5.26
1946	7,633,781	81,162.01	.01063	3,826	2,325	1,150	84	4.43
1947	8,270,240	99,307.85	.012	3,814	2,092	1,144	112	5.57
1948	9,853,261	134,523.43	.01365	4,329	2,316	1,390	136	6.08
1949	10,877,382	135,076.06	.0124	3,915	2,425	1,431	138	6.43
1950	11,732,679	133,853.82	.0114	4,443	2,706	1,824	164	7.18
1951	13,498,690	148,072.37	.01096	4,658	2,906	1,876	155	7.20
1952	17,737,243	192,991.43	.01087	5,779	3,878	3,690	178	8.15

Date of energization, July 1938. Percent coverage in area, 80 percent.

San Isabel Electric Association, Inc., Pubelo, Colo.

Year	Kilowatt hours purchased	Kilowatt hours cost	Total members Dec. 31	Farm members	Average kilowatt hours farm	Average farm bill
1942	295,500	$0.018	215	95	85	$4.93
1948	1,350,910	.016	881	329	140	6.59
1949	1,742,584	.013	962	369	163	7.16
1950	2,010,934	.013	1,041	389	189	7.56
1951	2,177,549	.013	1,119	453	187	7.86
1952	2,467,488	.013	1,156	451	208	8.06

Date of energization, May 1941. Percent coverage in area, 90 percent.

I should like further to emphasize if I may the importance of this diversion project. The rural electrics in the matter of their commitments to the Federal Government and their ability in the not too distant future to discharge their obligations here as to principal and interest payments find this most vital.

The Federal Government has to date underwritten in REA loans in this area an amount of $9,418,000 which will no doubt be increased appreciably in the future. The increased generation capacity installed will influence the schedules to the point of stabilization where we will be assured of repayment of interest and principal.

The rural electric systems are by no means incidental in the economy of this area and they are by no means incidental in the economy of our Nation.

In the 17 Colorado counties served in whole or in part by these three mentioned systems they paid in 1950 $41,200 in taxes. In 1952 $50,500 and will increase that according to load surveys to $87,700 in 1957. Our kilowatt consumption in 1950 was 12.6 million kilowatts. In 1952 it was 17.3 million. In 1957 it will reach 36.3 million.

I mention these simply to emphasize the great and growing need there for the Fryingpan-Arkansas to take care of.

Gentlemen, since this is a multiple purpose project and the power phase is one of the imperative considerations, please bear in mind that only 15 percent of our present national population is engaged in our greatest and most essential industry, American agriculture.

I believe the cost ratio is a little different from the point of view of population. Upon this 15 percent and upon it alone devolves the responsibility of feeding our Nation and providing much for export

trade and much, I believe to give away. Certainly we would never think of considering the construction of any great production plant without adequate water and electric-power facilities. I therefore enjoin upon you gentlemen to weigh heavily and consider well the merits and progressive potentials of this, one of the Nation's important construction and retrenchment activities, ever bearing in mind that economy certainly is a great thing but there is a vast difference between cutting expenses and spending and just simply cutting investments.

The first principle as you, I am sure, know of Government is to help the people to do what they could not do so well or could not do at all for themselves.

We have the rural electrics' interest at heart and we of the rural electric system sincerely feel and we as representatives of this Fryingpan-Arkansas diversion, feel that this project is legitimate. By our presentation we have tried to prove it is feasible and when assistance is granted we, and our posterity will prove it is a good, sound hard-headed business investment.

Mr. HARRISON. When does your contract with the Southern Colorado Power Co. expire?

Mr. AMEND. We have various contracts with the Southern Colorado Power Co. and other sources. I believe they expire in about 2 years.

Mr. HARRISON. Then this project would not be of any help to you?

Mr. AMEND. Oh, yes.

Mr. HARRISON. It would take more than 2 years to build?

Mr. AMEND. It takes more than 2 years to develop all the things that I have told you about, sir. The power companies now, as they tell us, are approaching their capacity and they have to have some additional generation capacity whether it be through construction of their own or construction assisted by us or whether we construct for ourselves.

Mr. HARRISON. That is all.

Mr. ASPINALL. I have one question. Perhaps Mr. Amend cannot answer it at this time. If you cannot I wish you would get the answer to us when you talk to the organization you represent.

You have been informed of the offer which the Public Service Co. and the Southern Colorado Power Co. have made to the committee? Are you able to state your position on that proposal?

Mr. AMEND. You mean do I object to that proposal?

Mr. ASPINALL. I asked if you approve it.

Mr. AMEND. There may be some minor details there, I do not know for I have not had an opportunity to study it thoroughly but I think that in a general way, yes, provided the companies' proposal would provide maximum benefits to preference customers.

Mr. ASPINALL. You think those people whom you represent feel the same way?

Mr. AMEND. I do. I think that they are sincere. They seem to have a very kindly feeling toward the rural electrics and certainly the rural electrics have no quarrel with them concerning these electrical matters. My position in these matters is to impress upon this committee particularly the growing need for electric service to farm and ranch people. You must appreciate——

Mr. ASPINALL. You do not have to sell the committee. I am not asking anything like that. I want to know about this Colorado departure from the usual procedures on matters which come before this committee relative to power and transmission lines.

I think you have stated it rightly, you have stated how we feel in western Colorado about it and I wanted it on the record that you feel it is a fair and equitable proposal they make by and large.

Mr. AMEND. It is always fair and equitable for the power companies to take over the transmission so long as they provide maximum benefits to preference customers.

Mr. HARRISON. Thank you, Mr. Amend.

The committee will stand adjourned until 9:30 o'clock tomorrow morning.

(At 4:40 p. m. the committee recessed until 9:30 a. m. Wednesday, June 10, 1953.)

FRYINGPAN-ARKANSAS PROJECT, COLORADO

WEDNESDAY, JUNE 10, 1953

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND
RECLAMATION OF THE COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS,
Washington, D. C.

The subcommittee met, pursuant to recess, at 9:35 a. m. in the committee room, New House Office Building, William H. Harrison presiding.

Mr. HARRISON. The committee will come to order.

Who will be your first witness, Mr. Chenoweth?

Mr. CHENOWETH. Mr. Chairman, our first witness this morning will be Mr. Dan Hunter of Dove Creek, Colo., a member of the Colorado Water Conservation Board and president of the Southwestern Colorado Water Conservation District.

Mr. HARRISON. You may proceed, Mr. Hunter.

STATEMENT OF DAN B. HUNTER, MEMBER, COLORADO STATE WATER CONSERVATION BOARD; PRESIDENT, SOUTHWESTERN CONSERVATION DISTRICT

Mr. HUNTER. Mr. Chairman, for the record my name is Dan Hunter. I reside in Dove Creek, Colo. I am a member of the Colorado State Water Conservation Board and the president of the Southwestern Conservation District. I also represent the State in an advisory capacity on the national rivers and harbors congress.

I wish to state for the matter of the record that I am appearing here at this time representing the Southwestern Water Conservation District, which comprises eight counties in southwestern Colorado, known as the San Juan Basin area.

I have resided in the State of Colorado for 35 years.

You gentlemen have had the pleasure of listening to a great number of experts in this testimony. Personally, I wish to say that I am not an expert, and ofttimes I wonder if I would know the difference between an engineering slide rule and Blackstone's Commentary on English Law.

Mr. ASPINALL. Mr. Chairman, may I suggest, as the Congressman of the witness who is now on the stand, one of my most able constituents, if he is not an expert in water affairs, then we do not have any in western Colorado.

Mr. HUNTER. Thank you, Wayne. I really appreciate that coming from Congressman Aspinall, as I happen to have had the pleasure and the honor of nominating the gentleman when he ran for Congress.

35059—53——10

Perhaps you may wonder why I am appearing here at this time. I wish to make this statement. I only have 4 minutes, and that is a pretty short time.

My understanding was that when the Southwestern Water Conservation District, which represents about one-third of the area of western Colorado, we were under the opinion that the cities of Colorado Springs, Pueblo, and the various towns south of Pueblo to the Kansas State line were in dire need of water. And as such, a great deal has been said relative unto the amount of water available in the western slope.

In our opinion it was not so much a question as to how much water we people in the western slope did have, realizing that 80 percent of the population of the State of Colorado lies on the eastern slope and 80 percent of the water is on the western slope. And we were cognizant of the fact that perhaps the second word that God ever spoke unto man was, "You are your brother's keeper." That answer has been ringing down through the eons of time throughout millions of years. You are. We recognize this fact on the western slope, that in a measure we are our brother's keeper, and as such we are willing to make the division of the waters we might have.

I might say this: Perhaps there is not another spot upon the face of the globe that could remind you of the fact of the need of water more than where I live. You should come into my town. I can show you the demarcations of canals and laterals that were constructed more than a thousand years before Columbus discovered America. You would go with me into our canyons. I can show you the toeholds and the rocks from the dismal depths below to the dizzy heights above where the Indians had for centuries of time gone with their vessels and with their ropes and fabrics, cords, from the yucca and drew the waters from the streams below in order that they might use it for domestic purposes.

I know that I know the need of water as well as any man in the State of Colorado. Yet I do know this: That we are perfectly willing, when an emergency arises, to divide our waters with our fellow compatriots who reside on the eastern slope of the State.

We have in Colorado three agencies who have the legal authority to speak as to what divisions of the waters might be. One is the Colorado River Conservancy District, the other is the Southwestern Conservancy District, and the third is the Colorado Water Conservation Board.

I am here, Congressman Aspinall, from the simple fact that the Colorado River Conservancy Board and the Southwestern Conservancy District, of which I have been president for the past 12 years, in order to verify the statements that they have gone on record as being perfectly willing for this transmountain diversion of 69,200 acre-feet of water to be taken over the hills.

Gentlemen, I believe my time is up, and I thank you for this opportunity.

Do you have any questions?

Mr. ASPINALL. I have two questions I want to ask Uncle Dan, as we affectionately call him out home.

The first question is that the Colorado Water Conservation Board did study the question of surpluses, if any, in western Colorado, and they were of the opinion that this amount of water could be

taken to eastern Colorado without any apparent danger to the development of the western Colorado area; is that right?

Mr. HUNTER. I think, Congressman Aspinall, that I have submitted my comments to this board and you will find that I have made that statement that they have.

Mr. ASPINALL. And the second thing is that no action has been taken by either of the groups to which you may belong, or which you may represent here, since the price of construction has increased from the original amount up to what they say it is now, some $173 million. You have not taken any action since then?

Mr. HUNTER. No action has been taken. And, Congressman, I will make this statement: That the people of the State of Colorado, through Colorado's water conservation board, has taken no further action relative to the transmountain diversion of the Arkansas project. And naturally, with the study of 30 months with the policy and review committee, and their report was submitted to us, we accepted it and went on record unanimously by vote of all of the directors, both from the eastern and the western slope, signifying that we were willing that the transmountain diversion take place.

Mr. ASPINALL. If the increase in costs did not tend to destroy the feasibility of this project, is it likely that your organization would change their position?

Mr. HUNTER. I can only speak for the Southwestern Water Conservation District, Congressman, in that respect. Our position is that, when teeming thousands of men, women, and children are practically dying from thirst for a drink of water that we are willing to divide to our last drop.

Mr. HARRISON. Thank you, Mr. Hunter.

Mr. HUNTER. Yes, sir.

Mr. HARRISON. Mr. Hunter's prepared statement will be made a part of the record.

(The statement referred to follows:)

STATEMENT IN SUPPORT OF THE FRYINGPAN-ARKANSAS PROJECT BY DAN B. HUNTER

Mr. Chairman, my name is Dan B. Hunter, my address is Dove Creek, Colo. I am a member of the Colorado State Water Conservation Board, president of the South Western Conservation District, which comprises eight counties lying within the great San Juan Basin. I also represent in an advisory capacity the State of Colorado on the National Rivers and Harbors Congress.

I have resided in Colorado for 35 years. In appearing before your august assembly I am making no recommendations with respect to the availability of water for large transmountain diversions from the western to the eastern slope of Colorado. However, I do recognize that there is urgent need in Colorado for supplemented water supplies in the Arkansas Valley. This need is particularly true concerning domestic and municipal purposes. I do not wish that any statement which I may make to be construed to mean that I am committing myself as agreeing to the second phase of what is known as the Gunnison-Arkansas project or the potential Blue-South Platte project. I do favor the Fryingpan-Arkansas project as an independent development.

In my opinion this transmountain Fryingpan-Arkansas project will not deplete the stream flow of the Colorado River to an extent that will impair the right of delivery of 75 million acre-feet of water at a point on the river, known and designated as Lee Ferry through a 10-year period as called for under the 1922 Colorado River Compact.

I am aware of the fact that this compact allocates the bottom half of the flow of the Colorado River to the 3 lower basin States, while the 4 upper basin States must be contented to put to use the erratic flow of the stream. This being true, I opine

that the Fryingpan-Arkansas project will in a measure aid and assist in regulating the peaks and valleys of the Colorado River.

We are all aware that a considerable storage capacity will be necessary in order to carry water over from wet years to dry years if the delivery of water to Lee Ferry under the 1922 compact is consummated, and the commitments to the Republic of Mexico fulfilled. I fully realize that every drop of water in the Colorado River and its tributaries is highly significant, since the potential demands will far exceed the percentages of the 7,500,000 acre-feet allocated unto the upper basin States. Within the past 3 years it has been ascertained that it is potentially possible to utilize a great amount of water on the western slope of Colorado for the development of synthetic fuel, hydrogenation of coal, pulp-paper factories, and other developments.

I am deeply interested in the development of the natural resources of our State; however, I feel that I would be remiss in my duty as a member of the Colorado State Water Conservation Board and as president of the South Western Conservation District if I did not recommend that the Fryingpan-Arkansas project be constructed as soon as possible. I assure you that I am moved by no motive other than the good of Colorado as a whole. The replacement storage reservoir at the Aspen Reservoir site, with an active capacity of 28,000 acre-feet a part of which is in excess of replacement requirements will be available for future use in meeting usage demands in western Colorado, which in my opinion is sufficient compensation for the transmountain diversion known as the Fryingpan-Arkansas project.

The Colorado State Game, Fish and Wildlife are satisfied with the maintenance of the stream flow as outlined in the project for the Fryingpan River, while the loss and damage to the Roaring-Fork River and its tributaries above the Aspen Reservoir from diversion of these streams will be prevented by extending the Hunter conduit to the south fork of Hunter Creek and the enlargement of the tunnel from Chapman Gulch to the east end of the Fryingpan-Arkansas tunnel.

As a member of the executive board of the Colorado State association of the 23 Colorado REA State co-ops, naturally I am deeply interested in seeing that this project be developed to completiom, since the project will withhold approximately 135,000 acre-feet of storage water for the development of electric energy, which will produce 400 million kilowatt-hours of electric power annually. It is useless for me to comment as to the need of this power, since your committee recognizes this need at the present time, saying nothing concerning future potential possibilities; 15,000 acre-feet of this project water is needed immediately for municipalpurposes in the cities of Colorado Springs and Pueblo as well as a number of valley towns located between Pueblo and the Kansas State line. The future municipal potential needs for these cities and towns, approximates 53,000 acre-feet annually.

Definitely in my opinion as much of this water as economically feasible should be earmarked for municipal purposes.

In conclusion may I say: That I am a farmer and for the past 35 years the hungry Colorado winters have congealed my blood like the ice upon our lakes and rivers. During these years my plowshare did break the stubborn sod locking the golden sunshine in the furrow with the fond expectancy of a glorious harvest. Lands were then to be had for the asking, and our houses were built from logs hewn in the forest. Ours was a desolate desert land where the mountains lift through the snows their lofty and luminous summits. Where the elk and the antlered deer wandered over the hills until they were weary of travel and would lie down to rest; and the brown cinnamon bear, the anchorite monk of the forest, climbed downward to the abysmal depths of our canyons to dig for roots and herbs buried along the banks of our streams.

I reside on the western slope of Colorado, my geographic location is such that I am naturally inclined to oppose any transmountain diversion of water from the western to the eastern slope of Colorado. I am but human, therefore my first thought naturally would be, to conserve and develop the waters of the Colorado River and its tributaries for the benefit of those of us who reside west of the Rocky Mountains. But as a member of the Colorado Water Conservation Board and as president of the Southwestern Water Conservation District, I am also deeply interested in the greatest good for the greatest number of people, therefore I am submitting this résumé in order to focus the points at issue in this project. I assure you that I wish no stars of Bethlehem to hang on my Christmas tree, I do not possess the mind of an angel, nor the soul of a seer, I am only one of those horny handed sons of toil who enjoys the sentimental delight in gazing upon a reservoir filled with water, where schools of rainbow trout lie hidden like ingots of silver buried in the golden sands of the lake.

I have stood at the headwaters of the Fryingpan and Roaring Fork Rivers, where their tiny trickle flows among the rocks and pinnacles of the great Rocky Mountains in order to swell the floodtide of the Gulf of California. I am now asking that you gentlemen divert the waters of these streams along a most difficult route to the shores of the Gulf of Mexico. Why am I making such a request? In order that thousands of men, women and children may slake their thirst from the cooling waters of our Rocky Mountain streams.

The men who grant the construction of this reclamation project will have written history, not upon tablets of stone, but within the hearts of a thirsty people.

Gentlemen, we ask that you hear and heed our small Macedonian cry to "Come over and help us," praying that the multitudinous echo of our voices may not die away in the distance, but may you catch the vision of the golden sun shining upon abundant waters, where myriad water lilies rear their head in resplendent beauty like a crown of gold upon the head of some Arabian princess, then our hearts will be filled with love for our fellowmen as we usher into the dawn of another heaven; for the construction of this project will unite the majority of the people residing on the western and eastern slopes of Colorado in the bonds of love and friendship, such as we have never known before.

Mr. Chairman, we ask at this time that you extend unto us this magical golden wand in order that we may wave it in the midst of our people who will be touched by the holy fire that will melt and mingle us together.

I thank you.

Mr. CHENOWETH. Mr. Chairman, I would like to present two witnesses, both of whom may be referred to as dirt farmers. They are very prominent farmers in the Arkansas Valley, in the area to be benefited by the supplemental water involved in this project. I want to present them together. I take pleasure in presenting Mr. Ted Ryan of Rocky Ford, and Mr. Roy Cooper of Las Animas, Colo.

STATEMENTS OF ROY D. COOPER, LAS ANIMAS, MEMBER, BOARD OF DIRECTORS, FORT LYON CANAL CO. AND TED R. RYAN, DIRECTOR, CATLIN CANAL CO., ROCKY FORD, COLO.

Mr. COOPER. I am Roy D. Cooper of Las Animas, Colo., director of the Fort Lyon Canal Co. for the past 10 years.

I have a statement here which I will present for the record. Since time is limited, I will elaborate on certain pages of this.

Under the Fort Lyon Canal system there are approximately 350 farmers, and there were 30 farmers of average-crop production ability interviewed individually. A comparison was made of acreages and yields under present water conditions, with supplemental water conditions based on an average price range of the period from 1939 to 1944, inclusive.

The data showed that a lack of adequate water caused a gross loss of $24.24 per acre, or a net loss of $10.72 per acre. Over the entire system, this would show a gross loss of $2,013,319.29, or a net loss of $890,481.26 per annum.

Mr. ASPINALL. Now, Mr. Chairman, I want to ask Mr. Cooper a question. It is your position, Mr. Cooper, if you could get this half acre-foot additional supplemental water that you would not have that loss or a major portion of that; is that right?

Mr. COOPER. Yes, sir. The difference of $122,838 is a direct loss of income to the community in the form of labor, machinery and supplies. Also, the increased activity created within the community by additional water would create a more stable and year-round economy which is impossible to measure in dollars and cents. Much of the losses I have mentioned can be avoided by the Fryingpan-Arkansas project.

This survey showed there would be an increase in diversified crops, such as onions, beets, potatoes, and tomatoes. These crops show a higher net loss per acre due to the shortage of water.

For example, the average gross income from an acre of alfalfa is $59.30; from that of an acre of onions, it is $575. This shows a difference of $515.70. With a meager 1 percent increased acreage of one of these diversified crops, such as onions, there would be an approximate increase of 830 acres which would gross $477,250, or approximately one-half million dollars.

It is also true that there is as high as a 50-percent loss on certain crops that require the entire climatic growing season of this section of the country to produce a crop. These crops may be held back 30 to 50 days early in the spring, due to a lack of water or retarded 30 to 50 days at the end of the season from the lack of water. Under the Fort Lyon Canal's present system, they divert during the wintertime 35,000 acre-feet of water, which I believe is at times 50 to 75 percent wasted. This water could be stored and in turn used in the late fall and early spring, we could realize almost a 100-percent efficiency. The Fryingpan-Arkansas project will also make this saving possible.

There are vast areas of land that can be made no better by man's ability, but here is one that can be by obtaining additional water by transmountain diversion. A better use can be made of the water available if controlled by a storage reservoir on the Arkansas River above Pueblo.

I thank you.

Mr. HARRISON. I take it you wish this statement of yours made a part of the record?

Mr. COOPER. Yes, sir.

Mr. HARRISON. Without objection, it is so ordered.

(The statement referred to follows:)

STATEMENT IN SUPPORT OF FRYINGPAN-ARKANSAS PROJECT BY ROY D. COOPER

I, Roy D. Cooper, live 6 miles northeast of Las Animas, Colo. I was born on this irrigated farm 41 years ago. I have carried and used an irrigation shovel ever since I was big enough. I operate 720 acres of irrigated land. On the average, I feed 3,000 lambs and 300 steers annually.

For the past 10 years I have been a member of the board of directors of the Fort Lyon Canal Co. which is one of the largest, if not the largest, irrigation sysvems in Colorado.

The section of the main stem of the river between La Junta and Lamar has approximately 100,000 acres of irrigated land. It is made up of three separate irrigation systems, namely, Las Animas consolidated canal, Las Animas town ditch, and the Fort Lyon Canal. The Las Animas town ditch has no water shortage due to an early priority and small limited acreage. The Las Animas consolidated ditch and the Fort Lyon Canal have approximately equal shortages and crop similarities. Of the three above-mentioned systems, the Fort Lyon Canal has approximately 90 percent of the total acreage and also has approximately 30 percent of the total acreage of the main stem of the Arkansas Valley which is irrigated. Using the Fort Lyon Canal data as a basis to compile the following figures and statements would in turn be an approximate picture of this entire section.

FORT LYON CANAL SYSTEM

This system comprises the Fort Lyon Canal, Fort Lyon Storage Canal, Horse Creek Supply Canal, Adobe Creek Supply Canal, Horse Creek and Adobe Creek Reservoirs.

The Fort Lyon storage canal, Horse Creek supply canal and Adobe Creek supply canals are feeder canals for Horse Creek and Adobe Creek Reservoirs.

Water stored in the above reservoirs is released through outlet ditches to the Fort Lyon Canal which is the distribution canal for the system. This canal diverts water from the Arkansas River approximately 3 miles west of La Junta,

Colo., on the north side of the river at a location known as the point of rocks and runs in a northeasterly direction for 105 miles to its terminus which is 7½ miles north and 2 miles east of Lamar, Colo., and irrigates 93,000 acres which comprise 419.18 farm units.

PRINCIPAL CROPS

These crops are alfalfa, corn, and cereals. A limited acreage of onions, potatoes, and sugar beets are grown each year, but generally on land where underground water is available for pumping. During a part of the growing season, the supply in the Fort Lyon Canal is so short that water cannot be supplied often enough for growers of onions, potatoes, and sugar beets to produce the best results, unless storage water is available.

WATER SUPPLY

The flow of the Arkansas River available for the Fort Lyon Canal is very erratic. During the greater portion of the year, the first decree of 165 feet is diverted. The second and third decrees, which make a total of 933 second-feet, are only available during the period of snow runoff from May 15 to July 1 and at times of heavy rainfall over the drainage basin above the Fort Lyon Canal. During the summer months, the river is subject to sudden rises of short duration from rain and during these periods the river flow at the Fort Lyon headgate may vary from several thousand to 10 to 15,000 second-feet.

Due to the erratic flow into the Fort Lyon Canal, the farmers apply more water than necessary during periods of high flows in the canal, because they do not know when the supply will diminish.

If the supply of the water to be diverted could be controlled by a reservoir upstream, it would be possible to make a more efficient use of the water.

The following table is composed of figures and data kept by the Fort Lyon Canal system. The table gives the yearly diversions, the gross duty based on the present irrigated acreage, and the total yearly shortages in acre-feet on the assumption of a gross duty of 3 acre-feet for the acreage irrigated under the canal.

As used herein, the gross duty is the total amount diverted from all sources (river and water from storage). In compiling the following table, it does not take into consideration any transmission losses in the main canal or laterals from it, or temperature losses, or variations in precipitation.

The average annual shortage in years of normal precipitation based on a gross duty of 3.0 acre-feet amount to 70,000 acre-feet which, if available, would give this system a firm, controlled water supply.

A glance at the table will show that during the period from 1931 to 1940, inclusive, the diversions were extremely low. This period is known as the dust-bowl period.

This table also shows the necessity for additional water for this system and the controlling of the same by storage upstream.

Fort Lyon canal system

	Total amount diverted in acre-feet for irrigation	Gross duty acre-feet for 93,000 acres irrigated	Total shortage in acre-feet based on 3.0 acre-feet gross duty for 93,000 acres		Total amount diverted in acre-feet for irrigation	Gross duty acre-feet for 93,000 acres irrigated	Total shortage in acre-feet based on 3.0 acre-feet gross duty for 93,000 acres
1916	250,395	2.69	28,605	1935	209,685	2.16	78,315
1917	216,708	2.33	62,292	1936	232,119	2.50	46,881
1918	229,574	2.47	49,422	1937	182,470	1.96	96,530
1919	266,977	2.87	12,023	1938	236,480	2.54	42,520
1920	286,560	3.08	[1] 7,560	1939	143,079	1.54	135,921
1921	191,779	2.06	87,221	1940	104,013	1.12	174,987
1922	224,453	2.41	54,547	1941	250,662	2.69	28,338
1923	193,135	2.08	85,865	1942	265,724	2.86	13,276
1924	227,376	2.44	51,624	1943	215,613	2.32	63,387
1925	181,286	1.95	97,714	1944	218,881	2.35	60,119
1926	218,377	2.35	60,623	1945	218,449	2.35	60,551
1927	208,987	2.26	69,013	1946	209,793	2.26	69,207
1928	230,826	2.48	48,174	1947	245,792	2.64	33,208
1929	248,471	2.67	30,529	1948	263,314	2.83	15,686
1930	236,214	2.54	42,786	1949	252,246	2.71	26,754
1931	154,728	1.66	124,272	1950	230,681	2.48	48,319
1932	163,771	1.76	115,229	1951	208,968	2.25	70,032
1933	203,251	2.18	75,749				
1934	100,673	1.08	178,327	Average		2.28	66,960

[1] Overage.

A recent survey was sponsored by the Water Development Association of Southeastern Colorado under the direct supervision of farmers which facts were recorded and tabulated.

Under the Fort Lyon Canal system, 30 farmers of average crop production ability were interviewed individually. A comparison was made of acreages and yields under present water conditions with supplemental water conditions based on an average price range of the period from 1939 to 1944, inclusive.

The data showed that a lack of adequate water caused a gross loss of $24.24 per acre, or a net loss of $10.72 per acre. Over the entire system, this would show a gross loss of $2,013,319.29, or a net loss of $890,481.26 per annum.

The difference of $1,122,838.03 is a direct loss of income to the community in the form of labor, machinery and supplies. Also, the increased activity created within the community by additional water would create a more stable and year-around economy which is impossible to measure in dollars and cents. Much of the losses I have mentioned can be avoided by the Fryingpan-Arkansas project.

This survey showed there would be an increase in diversified crops such as onions, beets, potatoes and tomatoes. These crops show a higher net loss per acre due to the shortage of water. For example, the average gross income from an acre of alfalfa is $59.30; from that of an acre of onions, it is $575. This shows a difference of $515.70. With a meager 1 percent increased acreage of one of these diversified crops, such as onions, there would be an approximate increase of 830 acres which would gross $477,250, or approximately one-half million dollars. Since this locality has ideal climatic and soil conditions to raise these diversified crops, it is a shame this terrible loss exists due to the shortage of available water.

It is also true that there is as high as a 50 percent loss on certain crops that require the entire climatic growing season of this section of the country to produce a crop. These crops may be held back 30 to 50 days early in the spring due to a lack of water or retarded 30 to 50 days at the end of the season from the lack of water. That condition exists under the present water supply; for example: Alfalfa should yield on the average $59.30 per acre which in a dry time takes a 50 percent loss amounting to $29.65 per acre. This multiplied by the total acreage of 37,056.27 shows a gross loss of $1,098,727.41. Figuring corn, sugar beets, and barley in the same way, the resulting losses are: corn, $380,585.90; sugar beets, $184,086; barley, $88,155.25.

Fort Lyon records 1916–52 show approximately a 30-percent loss of storage water by seepage through long storage canals and by evaporation from shallow storage basins in this plains area of hot and arid climate. If all water available could be stored upstream, data shows the 30 percent loss could be decreased to 1 percent. The Fryingpan-Arkansas project would make this saving possible.

It is very difficult to actually measure the value of winter irrigation. At the present time, winter water is applied on ground that has been plowed in the fall and is very hard and cloddy. It does not carry enough moisture to freeze and mellow down so it can be worked into a good seedbed in the spring. If we had additional water in the late summer, this fall-plowed ground would carry enough moisture for freezing and thawing and would be in good condition without winter irrigation. Also, we now have to water perennial crops in the wintertime so they have sufficient moisture to start their growth early in the spring. If they had sufficient water late in the summer or early fall, they would not need to be irrigated during the wintertime. So it is my belief that if we had additional water for late summer or early fall and early spring irrigation, we could store the water which we now apply on the ground in the wintertime.

Under our present system, the Fort Lyon Canal now diverts on the average, during the winter months, 35,000 acre-feet of water which, I believe, is at times 50 percent to 75 percent lost or wasted. If this water could all be stored and in turn used in the late fall and early spring, we could realize almost a 100 percent efficiency. The Fryingpan-Arkansas project would also make this saving possible.

There are vast areas of land that can be made no better by man's ability, but here is one that can by obtaining additional water by transmountain diversion. A better use can be made of the water available if controlled by a storage reservoir on the Arkansas River above Pueblo.

Mr. RYAN. I am Ted R. Ryan, of Rocky Ford, Colo. For a little over 20 years I have been a director of the Catlin Canal Co. and the Mutual Ditch Co. I have here a statement that I would offer for the record, and I would like to make a few oral remarks.

Under our ditches, under the Fort Lyon and all the principal ditches of the valley, these surveys were made. I have had an opportunity to

study those surveys, and from my own experience as a farmer, supplemental water at $5.40 per acre-foot is cheap crop insurance.

By August, when the last irrigations are necessary, I have invested in each crop-acre from $70 to $150. I have nofurther expenses except a small expense of the actual application of those last 1 or 2 irrigations, and the harvest expense. Water shortage at this time might ruin my crop.

I can afford to pay for the water required to make this crop, to finish this crop in August, $5.40. It is cheap water.

There is not only my opinion, but there is the opinion brought out in these surveys. It is the opinion that I know is held by my farmer friends in Pueblo, in Otero and in Cowley County, and also by my farmer friends in Mr. Cooper's county of Bent.

Mr. ASPINALL. Mr. Chairman. Mr. Ryan, I will admit it is cheap insurance, and will admit, perhaps, it is cheap water, but there are a lot of people who do not even take insurance if it is cheap. Now, is it your opinion that the people of the area involved will buy this water readily at the proposed cost of $5.40 an acre-foot?

Mr. RYAN. Mr. Aspinall, it is my opinion that they will and that they can well afford to do so; and I will emphasize—it is my opinion that they will contract for it at that price, due to the fact that it will represent a small proportion of the total water which they will use. The water now presently used does not cost them nearly that much money.

Mr. ASPINALL. Of course, as I understand it, the water they call winter water does not cost them anything, and they will have to pay $2.25 an acre-foot for that if this project goes through.

Mr. RYAN. Yes.

Mr. ASPINALL. And it is your opinion they will pay that without any question?

Mr. RYAN. It is my opinion that they will, sir.

Mr. HARRISON. Any questions, Mr. Pillion?

Mr. PILLION. No questions.

Mr. HARRISON. Mr. Ryan's statement will be made a part of the record.

(The statement referred to follows:)

STATEMENT OF FRYINGPAN-ARKANSAS PROJECT SUBMITTED BY TED R. RYAN

I am Ted R. Ryan of Rocky Ford, Colo. I have lived in the Arkansas Valley in Colorado for 48 years and have been actively engaged in farming there for more than 30 years. My family has been engaged in the production and sale of Rocky Ford cantaloup and other vine crop seeds, as well as general farming, for about 50 years. I have been a director of the Catlin Canal Co. for 20 years. I am here to present the situation of the farmer in the central part of the Arkansas Valley in Colorado.

I shall speak first of the general water shortages that prevail in my area, second of the particular shortages under two representative irrigation ditches, and third, of the farming conditions and methods that result from these shortages, and, finally, of how these matters would be altered by the addition of water from the Fryingpan-Arkansas project.

The surveys conducted by the Water Development Association of Southeastern Colorado, assisted by the Pueblo office of the Reclamation Bureau, show the chronic shortage in irrigation water supply. These surveys also show the economic losses that result from this shortage. In these surveys more than 300 farmers prepared and presented detailed budgets of their present operations. They then prepared budgets to show the estimated production and expense with a complete supply of water. More than 150 ditch officials also assisted in this work.

Not all irrigation ditches are affected alike, however. A few of the older pitches, holding the earliest priority rights, are not much affected by the short supply of water. Other ditches suffer from the shortage in the early spring before the mountain snows begin to melt, and again in late July and early August when all the mountain snow is gone. It is during both of these periods when the water is most urgently needed, because in the spring the water is needed to start the newly planted crops and because, in July and August, the water is needed to counteract the high temperatures. These two periods of shortages have varying effects on the ditches, for some with poorer water rights suffer greater shortages over longer periods of time.

The varying effects of this chronic water shortage were demonstrated by the number of farmer financial failures during the drought and the depression periods. The greatest number of failures was among the farmers of those ditches with poorer water rights. The number of failures was in inverse proportion to the amount of water available on the farms. As the water shortage became more severe the number of failures increased. This was true because the cost of farming is almost as great with an insufficient water supply as with an adequate one. In addition, those farmers with an insufficient water supply were adversely affected at planting time, by either being restricted in the kind of crops they could plant or by being forced to delay planting with a resulting loss in yields. This relatively constant cost of farming combined with decreased income due to water shortages resulted in the greater number of financial failures being found among farmers of the ditches with poorer water supply.

The farmers of our valley have in past years been quite diligent in attempting to correct these conditions. A number of small reservoirs have been built and small transmountain diversions have been constructed. Wells have been put down to supplement the water supply, but these wells have been limited in number and are of assistance only to single farms. The areas where underground water is available in sufficient quantity for irrigation are quite limited. In most cases the underground water is rapidly depleted by constant pumping. While these attempts have been of value, they have not solved the problem. The shortages of water cannot be overcome without outside aid. With assistance, however, whereby the shortages can be eliminated and the income thereby increased, the farmers can repay the costs advanced by the outside assistance.

Figures show that the Fryingpan-Arkansas project would supply about 53 percent of these shortages in the average years, and would eliminate all the shortages in about half the years.

Turning to water shortages in particular instances, I want to refer to the Catlin Canal with whose problems I am familiar since it supplies my farm with irrigation water. The Catlin Canal diverts water from the main stem of the Arkansas River at its confluence with the Apishapa. It extends south eastward from there for 33 miles. There are 18,770 acres under its system of which 15,797 are irrigated. There are about 250 farms. It has the following decrees: 22 second feet, 1875; 226 second feet, 1884; 97 second feet, 1887.

The Catlin Canal has acquired in recent years supplemental water supply. It now owns seven-eights interest in the Mount Pisgah Reservoir and the Larkspur ditch in whole.

Mount Pisgah Reservoir is located in Oil or Four-Mile Creek in Teller County, Colo., near the city of Cripple Creek. It has a capacity of about 3,000 acre-feet.

Larkspur ditch is a small transbasin diversion on Marshall Pass. It produces 200 to 700 acre-feet annually, but due to difficulties of delivery has been of little use to the Catlin system. The Catlin Canal is a ditch with an above average water right. Despite this fact, the Catlin Canal farmers experience water shortages in late March, April, and early May, and again in late July and early August.

The Catlin Canal annually diverts an average of 3.3 acre-feet of water per acre of land irrigated by its system from the Arkansas River. Much of this water is diverted in late May, June, and early July. At this season of the year not all the water diverted can be beneficially used and a considerable amount is returned to the river. Therefore although throughout the year 3.3 acre-feet per acre is diverted for the use of the Catlin Canal farmers, not all this water is used because it does not come at the season of the year when most needed.

A survey has been made by 23 representative farmers on the Catlin Canal to determine present losses due to water shortages and to determine how much of these losses could be eliminated by an adequate water supply. This survey shows that the financial losses that would be eliminated by securing additional water would amount to $29.98 gross or $9.78 net per acre. Two-thirds of this saving goes to labor and for services and supplies in the community and one-third

goes to the farmer. The multiplication of this saving per acre by 15,800 would give the total saving under the Catlin Canal if adequate water supplies were available. 15,800 is the total acreage under this canal system. This saving per acre multiplied by the total acreage amounts to $473,684 gross annually or $154,524 net. This is how valuable additional irrigation water is to the farmers of the Catlin Canal.

The picture is somewhat different under another canal in my area. The Otero Canal has a less dependable water supply. As the Catlin Canal served as an example of a ditch with above-average supply of water, so will the Otero Canal serve as an example of one with a below-average supply.

The Otero was first organized as a mutual ditch company. Later, having encountered financial difficulties, they reorganized as an irrigation district and were refinanced. Under the reorganization a considerable portion of the previously irrigated land was not included in the irrigation district which as redefined contained 5,325 irrigated acres. This action, of course, improved the supply of water for the remaining acres. This group also acquired a small reservoir far upstream to give them supplemental water. Despite these efforts to solve the water shortage, the Otero Canal still has difficulties. The average annual diversion is 1.6 acre-feet per acre irrigated, as compared with 3.3 for the Catlin Canal. Therefore the requirements to give the Otero Canal farmers an adequate supply of irrigation water is greater than the average for the valley. It follows, too, that their benefits will be proportionally greater.

The farmer survey committee for this canal found that a benefit of $100.23 gross and $21.19 net per acre would result from an adequate water supply. For the whole canal system the benefits would total $533,700 gross or $112,840 net.

There are four other ditches in this area. The Rocky Ford Highline, the Oxford Farmers, the Rocky, and the Holbrook.

The Highline is about 80 miles long and serves 24,000 acres.

The Oxford is 13 miles long and it serves 4,500 acres.

The Rocky Ford is about 17 miles long and supplies about 5,000 acres. It is the oldest ditch in the area and has 111.7 second-feet decreed in 1874. There are only 430 second-feet decreed from the Arkansas prior to this date and therefore the Rocky Ford's supply is ample.

The Holbrook is about 43 miles long and supplies 12,201 acres.

While the shortages of irrigation water have varying effects upon the different canal system, there is a similar general effect upon the farming conditions and methods. Because of these shortages, there is naturally, a reduced yield of the crops grown in the area. Because one of the periods of shortage comes in early spring, the result is a forced delayed planting in many seasons. Such crops as alfalfa and permanent pasture cannot be properly started. This delayed planting also adversely affects crop yields. It often happens, too, that due to prolonged spring water shortages, it becomes necessary for the farmer to completely change his planting plans. This change often forces the farmer to substitute a lower-income crop for a better one.

As the season progresses and more water becomes available, due to the warmer weather melting the mountain snows, the farmer tends to overirrigate his crops. This overirrigation is encouraged by the thought in the farmer's mind that his water supply may diminish shortly. This malpractice of overirrigating results in leaching away the fertility and also causing waterlogging of the heavier soils. Also if unused, the water would benefit some junior appropriator, thereby helping to balance his supply.

While the Arkansas Valley farmers realize that these conditions and methods are undesirable and have attempted to correct them, the present water shortage prevents any satisfactory solution. However, with the additional water that can be supplied by the Fryingpan-Arkansas project, most of these undesirable conditions and methods could be corrected. And here I wish to call to your attention the relatively small amount of water imported by this project. Also that the success of the proper reregulation of the Arkansas River by upstream reservoirs is dependent upon this imported water. These facts are set forth in the engineering reports. And, too, these reservoirs would allow storage of winter water, by agreement among the farmers. This water is now applied in the winter months. Some of the application is valuable, while in some cases the value is doubtful.

Adequate water would permit a greater diversity of crops because irrigation water would be available at the proper time for the planting of any particular crop. Adequate water supplies would also mean greater yields to the farmers because water would be available during the two critical periods of early spring and midsummer.

Uniquely, too, adequate water supplies would conserve water in our area. When the farmer knows that he will have sufficient water, he will apply it to his land only when and if needed. Under present conditions the water is applied excessively at certain times in anticipation of later shortages.

In summary, I have endeavored to show the conditions prevailing in the central part of the Arkansas Valley in Colorado. The farmers there have, in the past, suffered losses because of a chronic shortage of irrigation water. While they have attempted to correct this situation, they still experience shortages. The Fryingpan-Arkansas project would do much to relieve these shortages. The savings and benefits that would result from adequate irrigation water supplied by the Fryingpan-Arkansas project would be very great and are badly needed. These savings and benefits would be widely reflected by the improvement of the general economy of the entire area.

Mr. CHENOWETH. Mr. Chairman, we now want to present two statements relating to the need for additional municipal water in the Arkansas Valley, and our next two witnesses will be Hon. Carl D. Bryan, mayor of the city of Pueblo, and Mr. Harper Gardner, who is a trustee of the Pueblo Water Works, District No. 1, of Pueblo, Colo.

STATEMENTS OF CARL D. BRYAN, MAYOR OF PUEBLO; AND HARPER GARDNER, CITY WATER BOARD, PUEBLO, COLO.

Mr. BRYAN. I am Carl D. Bryan, mayor of the city of Pueblo, second largest city in Colorado, and a full partner in the Bryan Agency, Insurance and Real Estate, of that city. I have been a resident of this city for the past 31 years and my memories of Pueblo extend from the days when it was literally a horse and buggy town to this day when it is a modern, dynamic, industrial city of about 75,000 people. I submit this statement on behalf of the city of Pueblo.

As I have said, Pueblo is the second largest city in Colorado, and plays a prominent part in the industrial, agricultural, and transportation aspects of the western economy. But it was not always so. Pueblo's development has, in most respects, been relatively recent. In 1870 it was a town of only 700 inhabitants. In 1900 it was still a small dirt street community with 28,000 citizens and only one industry, an iron smelting works. By 1950, however, this industrial center was home to more than 75,000 people and, according to a recent survey by the University of Colorado, the metropolitan area has a population of approximately 100,000. These people are engaged primarily in industry and transportation, for Pueblo is the location of the Colorado Fuel & Iron Corp., the West's largest steel mill, of the largest ordnance depot in the world, of the regional shops of five railroads, and over a hundred smaller industrial and processing installations.

Moreover, the town and its surrounding area are continuing to grow at an amazing rate, for it boasts many features of interest to industry, including excellent climate, extensive transportation facilities, adequate labor supply, and many other advantages. One obstruction bids fair to stifle the city's growth, and that, of course, is the limited water supply.

Many otherwise interested industrial and commercial establishments have found the water problem insurmountable and have been forced to go elsewhere; one large manufacturing concern is right now interested in expanding its facilities by building a plant in Pueblo if a way can be found to provide 110,000 gallons of water per hour. In short, the economic potential of the area has not, and cannot be real-

ized, without more municipal and industrial water than is provided by present sources.

Coupled with the water problems of industry are those of the private residents. Nothing will grow in this area without irrigation, including lawns, flowers, and farm products. Puebloans, long accustomed to restrictions on their uses of water, find them each year more stringent and extensive, as more users come into the area and nothing is done to augment the water supply. This year, watering of lawns and gardens has been limited to a few days each month since last March—the earliest of such limitations that have ever been imposed. Sprinkling of dusty areas has been eliminated. Irrigation of parks and golf courses in the city has been limited to the point of limiting their continued use.

The only solution to our greatest problem in Pueblo is the Fryingpan-Arkansas diversion project for which we plead. There is no other way to augment our extremely limited supply. If Pueblo is to play its part in the expanding economy of this country, this project must be initiated.

I would like to point out to you just a couple of items in my statement on the growth of the city of Pueblo, and especially in the last 10 years, or since 1940.

From 1940 up to the present time, the population has increased from round figures of 52,000 to better than 75,000.

The question was asked yesterday, How many people would this project serve? I do not think that was answered, and I would like to say that in southern Colorado, which would take in most of this territory, it is not 150,000, but better than 300,000 people that this would serve at the present time.

I have Mr. Harper Gardner with me, who is a member of our city water board, who has a few notes, also in behalf of the city.

Mr. ASPINALL. Mr. Bryan, let us get this straight. You do not mean that there will be any direct benefits flow to 300,000-plus people because of this project. What you mean is: there is the number of those previously given that will be affected directly, and then the economy of the others of the 300,000 will be affected beneficially. Is that not what you mean?

Mr. BRYAN. The population of the Arkansas Valley in southern Colorado that would be affected directly and indirectly amounts to around 300,000 people at this present time.

Mr. ASPINALL. Mr. Bryan, I think you had better look at your census a little bit. You have got to take in Colorado Springs and the Rio Grande Valley, and a few other places. I do not want to argue this point. It does not amount to anything. But I do think it should be shown that the benefits flowing indirectly to this large number of people are present, not directly.

Mr. HARRISON. Are you through?

Mr. BRYAN. Yes, sir.

Mr. SAYLOR. With this growing economy that you talk about in such glowing terms in Colorado, why must you look to the Federal Government to pay for the municipal water supply? Back in the East in the States that are not covered by reclamation, if the towns in our section want water, we put it up to the people and ask them whether or not they want water. They have got to dig down in their pockets and place a bonded indebtedness on their city. They do

not ask the taxpayers of the United States to pay it, they pay it themselves.

Mr. BRYAN. We have exhausted all efforts to obtain water locally.

Mr. SAYLOR. What efforts have you exhausted?

Mr. BRYAN. There is no more water available. I think our member of the water board will bring that point out. We are not asking the United States Government to do anything except make us a loan. We are willing to pay that back. It is the same as floating a bond in another sense of the word.

Mr. SAYLOR. No. You are going to get this on the basis and under the guise of reclamation, 4 inches of water on your land down there, supplemental water, because that is the basis of this—4 inches of supplemental water.

The principal uses I have heard that this Fryingpan-Arkansas is going to have is to produce power and municipal water.

Mr. BRYAN. The people of the area are still willing to pay for it, Mr. Saylor.

Mr. SAYLOR. That is not the question. This is reclamation. You are here under the guise of reclamation. That is what this project is supposed to be, is a reclamation project. That is why you are here.

I have not heard anybody here testify about what this 4 inches of supplemental water is going to do. All anybody has testified to, as the principal things I have seen here in support of the statements that were submitted yesterday, is the industrial use and power.

Mr. ASPINALL. If my colleague will yield, before you came in, there were two well-known farmers of the area, Mr. Cooper and Mr. Ryan, who did testify to the very things which you are referring to at this time.

Mr. SAYLOR. I am sorry I was not here to hear those two good farmers testify, because I would like to find out just where the reclamation feature of this project is. That is the thing. This water problem, as far as municipal water is concerned and the story you have told with regard to how you folks out there cannot water your lawns we in the East have had for a long time. Many of our municipalities, around here have had that problem. We have not come down crying to Washington to build us a water supply. We have exhausted what we have out here, and we have just faced the proposition that we are limited. And that goes from New York City on down.

Mr. BRYAN. I think the answer, Mr. Aspinall gave, answered your question, and there are other farmers, I believe, to present their story as to that.

Mr. SAYLOR. That is all.

Mr. HARRISON. Any questions, Mr. Aspinall?

Mr. ASPINALL. No questions.

Mr. HARRISON. Mrs. Pfost

Mrs. PFOST. I would like to ask you what the total cost per acre will be to the farmer. I realize that some are going to be benefited more than others. But what will be the approximate total irrigation costs per acre in that area?

Mr. BRYAN. I am sorry I cannot answer that. I am not a farmer.

Mrs. PFOST. I see; you are from the city?

Mr. BRYAN. Yes, ma'am.

Mr. HARRISON. Mr. Pillion?

Mr. PILLION. Could you tell me what your physical plant is for your water supply at the present time in the city of Pueblo?

Mr. BRYAN. I think Mr. Gardner is going to go into this.

Mr. PILLION. I see.

Mr. HARRISON. Now the other gentleman.

Mr. GARDNER. My name is Harper Gardner. I have lived in Pueblo for 56 years, have been on the water board for 31 years.

I have been present at all of these meetings. I have heard all of the testimony that was given, and the only thing that I would like to say is that I believe the impression seems to be prevalent that this water may be too expensive for a municipal supply, and that the small cities could not afford to purchase the water.

I am very familiar with the needs of the city, and I do feel that our source of supply, any possibility of a source of supply, is exhausted as far as the eastern slope is concerned, and any quantity has got to come from the Colorado River basin.

We know this water is going to cost us some money. We know it will be expensive, but we are prepared and expect to pay for it. It will cost us considerable, but this increased cost, of course, will be reflected in the rates that we charge the public. Water will cost us from $20 to $40 an acre-foot, which will be about 2 or 3 times what our water costs under our decreed rights.

I believe that is all I have to say, unless there are questions.

Mr. HARRISON. Mr. Miller, do you have any questions?

Chairman MILLER. No.

Mr. HARRISON. Mr. Saylor?

Mr. SAYLOR. No.

Mr. HARRISON. Mr. Aspinall?

Mr. ASPINALL. Do we have anything in our hearings which show the present rate of cost of water in Pueblo and the comparative cost it will be under the project?

Mr. GARDNER. We recently raised our rates on January 1, 1952, about 40 percent. In fact, Denver did about the same. It has been raised all over Colorado. We figure that when we go to use the water from Fryingpan-Arkansas project—there are some details that have to be worked out and have not been thoroughly gone into—but we figure we will just about have to double our present rates.

Mr. SAYLOR. What are your present rates for domestic use?

Mr. GARDNER. Most of our city is on a flat rate.

Mr. SAYLOR. It is not metered?

Mr. GARDNER. Our large consumers are metered, and I would say about 20 percent of our pumpage is metered We realize, of course. that eventually we may have to go to meters. It will cost about a million dollars to meter the city of Pueblo. We are working into it kind of gradually. And we figure when we put on meters we will save about a third of our water. Consumption will be reduced about a third.

Mr. SAYLOR. What is your average consumption figures for domestic use?

Mr. GARDNER. The per capita consumption—well, Pueblo covers quite a large area. It is not very densely populated. I imagine our per capita consumption would run about 200 gallons per day per person.

Mr. SAYLOR. That is all.

Mr. HARRISON. Mr. Westland, do you have any questions?

Mr. WESTLAND. No. Thank you, sir.

Mr. HARRISON. Mr. Pillion?

Mr. PILLION. What does the physical plant consist of now in the water supply for Pueblo?

Mr. GARDNER. The physical plant?

Mr. PILLION. Yes.

Mr. GARDNER. We have two distribution systems in Pueblo.

Mr. PILLION. Two of them?

Mr. GARDNER. Yes, one on each side of the Arkansas River. The river runs right down through the center of the city, and our needs are identical.

Each side of the river has about the same number of cubic feet of decreed rights in the river. We also distribute about the same quantity from each side of the river.

Mr. PILLION. Do you have a filtration plant?

Mr. GARDNER. No, we do not have a filtration plant.

Mr. PILLION. How do you treat your water?

Mr. GARDNER. We treat it with chemicals, with chlorine, and we get a product from the Colorado Fuel & Iron Corp.

Mr. PILLION. Is that treatment plant large enough to take care of your immediate and foreseeable needs?

Mr. GARDNER. Yes. We have enlarged this year. We have increased our facilities. We had a bond issue and spent a little over $800,000 in putting additional pumping plants in and a laboratory and distribution mains.

Mr. PILLION. Then as far as the city is concerned, all you need is more water?

Mr. GARDNER. That is right.

Mr. PILLION. The physical plant is there?

Mr. GARDNER. Yes, sir.

Mr. PILLION. Now you have this item here of $32 million?

Mr. GARDNER. $32 million?

Mr. PILLION. Yes, for municipal water.

Mr. GARDNER. Yes.

Mr. PILLION. Roughly, what projects are contained in that?

Mr. GARDNER. I imagine in that municipal supply that it is a figure put in there by the department for all the towns along the valley. I do not know just what towns those are.

Mr. PILLION. What size main and how much main do you contemplate putting in for areas below Pueblo along the Arkansas River?

Mr. GARDNER. I could not tell you that, because I am just interested as far as Pueblo is concerned.

Mr. PILLION. Then so far as Pueblo is concerned, Mr. Gardner, if you just stop at the reservoir there and had sufficient water in that reservoir, you would not need any money for physical construction of the waterworks system, would you?

Mr. GARDNER. No.

Mr. PILLION. All you need is a reservoir with more water?

Mr. GARDNER. That is right.

Mr. PILLION. And so far as you are concerned, the rest of the $32 million means nothing to you?

Mr. GARDNER. Of course, that reservoir is about 10 miles from Pueblo, and there might be necessity to construct a pipeline up that far.

Mr. PILLION. Yes, but except for that portion of this 10-mile line into your water system, you would be in pretty good shape?

Mr. GARDNER. That is right. What we need is a reservoir of sufficient capacity to store water. Now we have a reservoir site that we could construct a reservoir on, but it is 175 miles west of Pueblo.

Mr. PILLION. Now assuming that construction, and you had 175 miles of additional lines along the Arkansas River, and that were to cost somewhere in the neighborhood of $30 million, what formula, what arrangement is contemplated for distributing the costs between the areas and communities down along the Arkansas River and the city of Pueblo? In other words, the cost must be allocated in some way to the communities down along the Arkansas River.

Mr. GARDNER. Yes.

Mr. PILLION. How does Pueblo avoid being charged for that cost?

Mr. GARDNER. We pay for that in the price of water per acre-foot. Just as an illustration, I will say that we have storage in the Colorado Fuel and Iron Corp. Sugarloaf Reservoir. However, it is not firm. They sometimes need that space for their own water storage, and when that occurs, then we have to dispose of our water. Much as we regret to have to sell it, we have to dispose of it to give them room. So we sold 2,000 acre-feet of water not so very long ago at $3 an acre-foot, which brought is in $6,000.

The price that we are paying for this project in price per acre-foot to the Reclamation Bureau, which runs from $20 to $40 an acre-foot instead of the prevailing price of from $3 to $5, that is where that comes in. That is the only thing we have. We pay for it in the price of water.

Mr. PILLION. If you pay from $20 to $40?

Mr. GARDNER. Yes, sir.

Mr. PILLION. What does the community at the end of the line pay?

Mr. GARDNER. You mean those smaller towns?

Mr. PILLION. Yes.

Mr. GARDNER. I am not familiar with that.

Mr. PILLION. Those smaller towns have investments of approximately 175 miles of water main down to the last community to be served.

Mr. GARDNER. I imagine that is all figured out in the price of the mains and the price they pay per acre-foot for water.

Mr. PILLION. Thank you very much. That is all.

Mr. HARRISON. Thank you, gentlemen. Mr. Gardner's prepared statement will be made a part of the record at this point.

A STATEMENT CONCERNING THE PROPOSED FRYINGPAN-ARKANSAS WATER DEVELOPMENT PROJECT, BY HARPER GARDNER

For the purpose of identification, I am Harper Gardner; I have been a resident of Pueblo, Colo., for 56 years, and have been a trustee of the Pueblo Water Works, District No. 1, for 32 consecutive years. In my present capacity as trustee, I serve as treasurer, and during my 32 years as a trustee, I have acted as chairman, treasurer, and secretary.

That part of Pueblo, Colo., north of the Arkansas River is served by the Pueblo Water Works, District No. 1; that part south of the Arkansas River is served by Public Water Works, District No. 2. In discussing the dire need for the Fryingpan-Arkansas water-development project, the following outline will consider the individual needs of both districts compiled as one, the needs of both districts being the needs of the entire city of Pueblo.

A municipal water supply, for the largest city as well as the smallest village, must have (1) a reliable source of supply, (2) sufficient storage facilities, and (3)

a good quality of water. The proposed Fryingpan-Arkansas project makes these three requirements possible for the city of Pueblo, and are discussed in their sequence:

(1) *Source of supply.*—The city of Pueblo depends almost entirely on the waters of the Arkansas River for its supply of municipal water. The decreed rights call for some 39,000 acre-feet of water annually, or some 52 cubic feet per second of time, provided there is that much water in the river to supply such amount. In 1934, the Arkansas River actually went dry, leaving the intake structures of the waterworks without a drop of water, placing the 50,000 people of the city of Pueblo in a catastrophic predicament. Working around the clock, wells were sunk to tap the underground waters of the Arkansas River, and by the narrowest margin, water was kept in the mains, tragedy averted. During the dry years which have followed, this incident has been repeated, but with the aid of the wells sunk in 1934, emergency measures have been inaugurated from time to time.

As recently as 2 years ago, an attempt was made to secure additional water for the city by purchase. The attempt failed due to a court decision. The city had an option to acquire certain water rights, and filed petitions in the district court to change the use of the water and to change the point of diversion to the city's intake structures. Hearings were held, but the petitions were denied, because it was the opinion that other appropriators would have been injured if the city's request had been approved. Thus the city has exhausted the possibilities of purchase or condemnation of existing agricultural rights and the necessary changes of points of diversion to make such acquisitions useful. If the purchases of water had been consummated (some very few have been made), it would have meant that the city would be legally entitled to more decreed water, while at the same time the farm land that was originally served by the purchased water would become a wasteland—a liability to the community and the Nation. But the sad part of this kind of a transfer is that there still is no more water in the river than there was before the change. Simply a change of use has been made and a change of point of diversion.

In 1934, 50,000 persons in the metropolitan area faced a water famine. In 1952, 80,000 face this same water famine. The official census figures reveal a municipal population of 50,096 persons in 1930, and 63,561 persons in 1950. In addition to the municipal population, since World War II days, it has become necessary to serve the metropolitan area with water, this figure being officially noted in the 1950 census as being 77,000 persons. A conservative estimate of the 1952 metropolitan population is 80,000 persons.

Foreseeing the practical impossibility of obtaining additional water supply from the Arkansas River, in 1931 approximately 2,000 acre-feet of water per year, average, was purchased by Pueblo, transported from the Colorado River Basin, and diverted to the Arkansas River, for use by the city. This transportation is now being made by open ditches, and is the only supplemental water to the Arkansas River now available to the city. Surveys for additional Colorado River Basin waters have been under consideration for a number of years, but for the most part have been held in abeyance pending the outcome of the Fryingpan-Arkansas project. This delay for the most part is to prevent the duplication of projects on the part of the city and the Bureau of Reclamation, should the project be consummated. The projects which the city has had in mind are comparatively small projects, none of which would be a complete solution to the problems involved, and would be a duplication in part to the over-all plans of the Fryingpan-Arkansas Project. It is further felt that it would be more desirable on the part of the city to secure a plentiful, firm supply of additional water, so as to safeguard an expanding population for a long time into the future, rather than relatively small projects which would serve only immediate needs, at a relative high cost to the City.

The city has been growing, and at present is continuing to grow at a rapidly expanding pace. New industries, additional expansion to existing industries, expansion of the Pueblo Ordnance Depot, accompanying large housing developments, both private and public, higher standards of living—all demand more and more water—water for domestic use, water for industrial use. Large sums have been invested in the installation of additional mains and pumping stations, mostly within the past 5 years. But the need for additional water supply has not been met, and cannot be met from the present source of supply. A conservative estimate of new water needed to keep pace with the normal expansion is between 18,000 acre-feet and 20,000 acre-feet of water per year, for possibly the

next 10 years. This water must be water from the Colorado River Basin, as no further development of the Arkansas River water is possible.

2. Storage facilities.—No matter how a municipality obtains its water, whether it be from underground or surface sources, this municipality cannot be deemed safe from drought and its ravages without an adequate storage system. Pueblo is no exception. The 2,000 acre-feet of water, average, transported from the Colorado River Basin, mentioned in *1*, is presently stored in Sugar Loaf Reservoir of the Colorado Fuel & Iron Corp. The amount so stored varies in different years, depending on runoff conditions both on the Arkansas River and the diversion ditch itself. The right to store this water in the Sugar Loaf Reservoir is not firm, and is subject to be evacuated therefrom if water is available for storage therein for the purposes of the Colorado Fuel & Iron Corp. Knowing that the storage of the city water was not firm, surveys and studies have been made to provide storage facilities, and have actually advanced to the stage of purchasing a reservoir site in the vicinity of Leadville, Colo. However, construction of the reservoir has been held in abeyance for the same reasons as advanced in *1*, i. e., to prevent the operation of duplicate structures by the city and the Bureau of Reclamation, and to the detriment of both. This proposed reservoir by the city contemplates the storage of only 10,000 acre-feet of water. A conservative storage requirement for the city would be at least 1 year's supply, or 40,000 acre-feet of storage. This amount of storage would be prohibitive to construct from a cost standpoint by the city at the present time. The Fryingpan-Arkansas project amply provides the necessary storage facilities needed so desperately by the city, both for present and future demands.

3. Quality of water.—The quality of the domestic water supply should be greatly improved as a result of the project. Although the city's water supply is not what could be termed an exceedingly hard water, the introduction of new waters to the Arkansas River should dilute the existing waters, so that the hardness should be reduced to some extent. The presence of new storage reservoirs should settle out many of the suspended solids now carried by the river, and especially during flood times when the waters are exceedingly turbulent. By lessening the hardness of the waters, each individual water user within the city will benefit directly by decreased costs of plumbing repairs, less soap to purchase, etc. The decrease in suspended solids will mean a direct savings to the waterworks in treatment costs.

SUMMARY

In conclusion, the city desperately needs an additional supply of water, both for present needs, and for future needs; the city needs storage facilities immediately, as demonstrated by the fact that the site has already been purchased, but construction withheld pending the outcome of the Fryingpan-Arkansas project; and finally, an improved water supply will result as a natural result of the project itself.

Mr. CHENOWETH. Mr. Chairman, I would now like to present two witnesses on behalf of organized labor in Pueblo: Mr. George J. White, representing the United Steelworkers of America, CIO, and Mr. Jack P. Morrison, representing the International Brotherhood of Electrical Workers, A. F. of L.

STATEMENTS OF JACK P. MORRISON, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS, A. F. of L., PUEBLO, COLO., AND GEORGE J. WHITE, UNITED STEELWORKERS OF AMERICA, CIO, PUEBLO, COLO.

Mr. MORRISON. My name is Jack P. Morrison and I represent organized labor in the State of Colorado on the water committee of the A. F. of L. I do not want to take up you gentlemen's valuable time, so I would like my written statement to be made a part of the record.

Mr. HARRISON. Without objection, it is so ordered.

(The statement is as follows:)

STATEMENT IN SUPPORT OF THE FRYINGPAN-ARKANSAS PROJECT BY JACK P. MORRISON, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS, PUEBLO, COLO.

Gentlemen, my name is Jack P. Morrison and I represent organized labor. Approximately 40 years of my life have been spent in the immediate vicinity of Pueblo and the Arkansas Valley. During this entire period I have been closely associated with organized labor, first, in the role of an interested onlooker and later, and at the present time, as an active member.

I can personally vouch for the 100 percent support by organized labor of this great project, and while my entire group recognizes and appreciates the values and benefits to be derived from its completion, other than those pertaining to payrolls, employment, etc., I wish to discuss these phases of the project only, and have no apologies to make for what might on the surface appear to be a selfish or mercenary attitude.

On all estimates of the cost of the Fryingpan-Arkansas project, the item, "Payroll," has been listed as the largest one item to be considered, and if, for instance, the original estimated cost of $147,440,000 is used, it is conservatively estimated that the payroll alone will amount to $48,976,840, or 33 percent of the entire cost; 66 percent of the workers involved will be skilled, 22 percent semiskilled, and 12 percent common labor. A breakdown of the different crafts, or classification, of such workmen in relation to their importance on the construction, shows the approximate man-hours for each craft as follows: Heavy equipment operators, 7,650,000; carpenters, 4,420,000; pipefitters and welders, 1,940,000; structural-steel workers, 1,940,000; electricians, 1,450,000. Above classifications all come under the heading of skilled workers and in addition to the man-hours listed, the helpers, or semiskilled workers are expected to raise the total figure by 9,400,000 man-hours and the common labor group by 5,400,000 man-hours.

A quick rundown of how the workers will spend the approximate $48,976,840 they will earn is as follows: Food, $12,293,190; housing, utilities, etc., $6,758,800; household operation, $1,861,120; furnishings and equipment, $2,057,030; clothing, $5,485,410; transportation, auto, etc., $5,436,430; personal care, $1,028,510; medical, $1,959,070; recreation, $1,812,140; education (formal), $195,910; gifts, contributions, etc., $1,028,510; insurance, $1,469,310; personal tax (Stateand Federal), $7,591,410.

The above figures represent of course the period of actual construction. However, organized labor is looking beyond this period and visualizing the vast amount of benefits on the completed project. This vision holds a promise of job opportunities in new industries, minimum unemployment, steady incomes, elimination of manpower migration, and a rise in living standards for workers with increased opportunities for them and their families. All of this will go far toward inspiring the construction worker with a feeling of dignity comparable to that of his white collar or professional neighbor.

Mr. WHITE. I am George J. White of Pueblo, Colo., representing the United Steel Workers of America, Franklin Delano Roosevelt Local 2102, affiliated with the Congress of Industrial Organizations. I am presently serving in the capacity of secretary of the grievance committee. Local Union 2102, which I represent, represents the production and maintenance workers of the Colorado Fuel & Iron Corp. and has a membership of 6,020. I am a lifetime resident of Pueblo and have worked for the Colorado Fuel & Iron Corp. for 14 years. Of those 14 years, I have been a union member 13 years and an officer or committeeman for 8 years.

My statement here is rather lengthy, and for the sake of brevity I would like to have this prepared statement made a part of the record.

Mr. HARRISON. Without objection, it is so ordered.

(The statement referred to is as follows:)

STATEMENT IN SUPPORT OF THE FRYINGPAN-ARKANSAS PROJECT BY GEORGE J. WHITE

I am George J. White, age 32, of Pueblo, Colo., representing the United Steelworkers of America, Franklin D. Roosevelt Local 2102, affiliated with the Congress of Industrial Organizations, and presently serve in the capacity of secretary of

the grievance committee. Local Union 2102 represents the Production and Maintenance workers of the Colorado Fuel and Iron Corp. and has a membership of 6,020. I am a lifetime resident of Pueblo and have worked for the C. F. & I. Corp. for 14 years; of those 14 years, I have been a union member 13 years and an officer or committeeman for 8 years.

Our union is in favor of the Fryingpan-Arkansas project and I will herein attempt to give our views on the immediate and future benefits we as citizens will enjoy through an expanded and prosperous community which would be made possible by the project.

The majority of union members are family men and home owners and as such are civic minded and interested in the growth and development of Pueblo, and of Colorado as a whole. Water has become more of a problem with the growth of the Pueblo area during and after the war and will continue with the expansion of the Pueblo Ordnance Depot and the C. F. & I. This year it was necessary, as early as March, to restrict irrigation in Pueblo, and from the present outlook, more severe restrictions will be imposed by early summer.

If we are successful in securing this project, it will mean an almost immediate expansion of Pueblo as is evident by the number of prospective small industries that have indicated their desire to locate in this area if water were available.

If either the two major sources of employment in this area found it necessary to release some of its workers or execute a complete stoppage, the immediate result would be a recession of all businesses, the continuance of such a condition inevitably resulting in further unemployment and a ruination of our economy. However, if more people were employed in divers industries, the chances of such a demoralizing condition would be minimized. The expansion of small business, however, would create a greater labor market and would balance the two major employers, the C. F. & I. and the Pueblo Ordnance Depot, by having the capacity to absorb workers who are laid off, and thus prevent most of the unemployment problems and stabilize the local economy.

It is certainly not good for an area as large as is involved here to be so dependent on two employers and an increase of water and power would undoubtedly be influential in bringing other industries to the area, resulting in the placement of more laborers.

With the expected expansion of the area, it would offer unlimited opportunities for both business and professional careers. In our opinion, this is a major factor: The average millworker has 3 or 4 children and they will all be seeking employment some day but with employment limited as it is, the unfortunate result is that these future workers will be forced to leave home to seek positions elsewhere, causing unhappiness for both the parents and the children and possibly an instability that could very easily lead them down the wrong path of life. Furthermore, it isn't advantageous or complimentary to a community if the "workers-of-tomorrow" are forced to leave their home town because it couldn't fit them in and then not be available when the need for them arose.

The project would have a two-fold effect on C. F. & I. employees. With farming and allied industries expanding, products manufactured at the C. F. & I. Pueblo plant would find a ready and close market, i. e., the C. F. & I. makes all forms of wire fencing, baling wire, barb wire, etc.

Assuming the C. F. & I. were to get the contracts for supplying steel products for the project, all of it could be produced locally in Pueblo except for some sizes of required pipe. Besides the monetary savings to the project, it would mean they would have enough contracted work to employ all its employees one month; this includes the time spent in iron ore and coal mining, the railroad shipping thereof, and so forth. Listed below are verified figures supplied me by the C. F. & I. on man-hours required to produce the estimated steel products required in the construction of the project:

Product	Amount required	Man-hours required
Reinforcing steel.....pounds..	175, 129, 000	1, 397, 362
Structural steel.....do....	12, 642, 700	82, 008
Miscellaneous steel bars and shapes.....do....	325, 900	2, 757
130-pound rails.....gross tons..	7, 000	84, 155
Pipe, 22- inch and 26-inch.....miles..	70. 6	149, 600
Total.....	.....	1, 715, 882

We want it understood that our point of view is not based on a selfish desire to keep only Pueblo and vicinity employed as the above points out that some sizes of the required pipe cannot be produced locally and would be obtained from Claymont, Mass. Also, not all the ore and coal is mined in Colorado but in the adjoining State of Wyoming.

In endorsing the project, we can see a better and larger community—one in which our children can grow up healthy and happy and can look forward to a secure future—a future in which a balanced economy will offer full employment.

In summarizing, we feel that what is good for labor is good for the community, State, and country, and the Fryingpan-Arkansas project will offer benefits to labor, thus being beneficial to all.

Mr. WHITE. I also have a statement here from Earl P. Law of Pueblo, who is also a representative of labor, who has since been elevated to management. At the time he was a union member, he represented the Colorado State Industrial Union Council, who has membership of all the CIO locals in Colorado. They also have endorsed the project, and I want to make this a part of the record.

Mr. HARRISON. Without objection, it is so ordered.

Mr. WHITE. Thank you.

(The statement referred to is as follows:)

STATEMENT IN SUPPORT OF THE FRYINGPAN-ARKANSAS PROJECT BY EARL P. LAW, UNITED STEEL WORKERS, C. I. O.

Gentlemen: My name is Earl P. Law, of Pueblo, Colo. I hold the office of vice president of local 2102, United Steel Workers, C. I. O., and vice president of Colorado State Industrial Union Council. I am employed by the Colorado Fuel and Iron Co. of Pueblo, Colo., in which city or the vicinity thereof I have resided since 1919.

I have been instructed and requested on behalf of the above organizations to represent the C. I. O. on all phases of the Fryingpan-Arkansas project.

Organized labor is interested in job security, continued prosperity, and the maintenance and improvement of the existing economy, not only of the Nation and Colorado, but particularly of the Arkansas Valley. In this respect the interests of the Arkansas Valley, the State, and the Nation and organized labor are identical—all depend upon the existence and availability of an adequate water supply. This accounts for the interest of organized labor. Present water supplies are inadequate for the existing requirements of industry and agriculture, cities and farmers. The cost of procuring additional supplies of water for the needs of the area exceeds the ability of the users to finance the project without Federal assistance. The Fryingpan-Arkansas project bespeaks a genuine need for water, and from all information that we can obtain it presents ample justification for the authorization of a Federal reclamation project. Additional waters made available by the project would make possible more job opportunities, increasing the self-sufficiency and productivity of the Arkansas Valley and the State of Colorado. This project will directly supply many jobs during construction, as well as afterwards. In addition, it will make possible substantially increased industry in the area, which increase will afford opportunities to widely diversified industries. Diversification and the distribution of industry will fit in with the defense requirements of our Nation.

The C. I. O. as an organization is confident that the authorization and construction of the Fryingpan-Arkansas project will greatly increase both the population of the area and its industrial opportunities. It is with an honest and sincere belief that we say the Fryingpan-Arkansas project should be authorized.

Mr. CHENOWETH. Mr. Chairman, I now wish to present our last witness. You mentioned something about we would turn over at 10:30, and I would like to have a few additional minutes. Mr. Damian Ducy of Pueblo, Colo., who is president of the Southeastern Colorado Water Development Association, who has largely sponsored this project is our last witness. I know his testimony will be of great interest to the committee.

Mr. HARRISON. Mr. Ducy.

STATEMENT OF DAMIAN DUCY, PRESIDENT OF THE WATER DEVELOPMENT ASSOCIATION OF SOUTHEASTERN COLORADO, PUEBLO, COLO.

Mr. DUCY. Thank you, Mr. Chairman.

I am Damian Ducy, president of the Water Development Association of Southeastern Colorado, and I present this statement on behalf of our executive committee, consisting of Harold H. Christy, Frank Hoag, Jr., and John W. Beaty. You have heard from Mr. Christy. Mr. Beaty is a livestock man and farmer, and Frank Hoag is the publisher of the third largest newspaper in the State of Colorado.

First of all, I would like to thank you gentlemen for having given us the time from your busy days for these hearings and for the courtesies you have extended our witnesses. We have come before you to ask for a loan and, consequently, place ourselves in the position of a borrower who has done business with a small bank, which, due to its limited capital, cannot make large loans. And we now have to go to a larger central bank in order to gain our accommodation.

Our association was organized in 1943. We have worked closely with the Colorado Water Conservation Board and the Bureau of Reclamation since that time. We have on our membership rolls some 4,000 people, and we have resolutions and statements which I would like to present for the record and on behalf of approximately 170,000 people who will be affected.

Colorado, as you gentlemen know, is considered the Centennial State, having been admitted to the Union in 1876. However, our civilization goes back to 1850 when our few communities were trading posts, often consisting of not over a few hundred people. We are now 33d in population and 22d in taxable revenue to the United States, according to figures upon which I rely.

Our greatest source of income is from agriculture, including livestock raising, and our farm population is 22½ percent of the whole. Our next greatest source of income is from industry, and the Colorado Fuel and Iron Corp., located in Pueblo, is the largest employer of labor in the State.

Next comes our tourist trade. Some of you, I know, have visited Colorado and are acquainted with the many attractions which we have to offer, as well as our delightful climate. Although Colorado is thought of as a mining State, this industry is fourth in importance as far as income is concerned.

As a result of the various compacts relating to the Colorado River, Colorado has been granted the use of 51.75 percent of the Upper Basin allotment, which roughly figures about 3,800,000 acre-feet, and we are allowed to put this to beneficial use if we take the proper steps in time. We in Colorado use roughly 1,600,000 acre-feet, which means a surplus of better than 2 million acre-feet, before allowing for transportation losses, evaporation and so forth.

We are asking for diversion of only 70,000 acre-feet, which is less than 4 percent of the water allocated to Colorado which is not now being used.

There are various characteristics of development between the east and west slopes, and I submit to you the following figures:

Land area—54 percent on the eastern slope, 37 percent on the western slope.

Water resources—we have 18 percent, while our fortunate friends on the western slope have 68 percent.

Irrigated land—we have 49 percent and our friends on the west side have 26.

Water production is a little over a foot per year on our side, while on the other side, according to our engineering studies, it runs about 13 feet at the high spots.

The arable land, if we had the water, is about 90 percent on our side and 5 percent on the other side.

This is due to the topography of the country because the western slope enjoys tremendous peaks and beautiful scenery.

The average rainfall in Colorado varies from as low as 11 inches to as high as 50 inches, with an overall average of 16 inches. However, the historic average is a trifle less than 12 inches in Pueblo County.

We have found that the average water supply passing through our irrigation systems varies greatly. Some of our better ditches can depend on some 3 to 5 acre-feet per year over a period of 200 days, while others can depend on only 1 acre-foot, if lucky, and that for about 50 days.

The population of the Arkansas Valley has grown from 137,000 in 1900 to 265,000 in 1950. That embraces the 12 counties, and as Mayor Bryan says, there is approximately some 285,000 in our 12 counties today. The water supply is literally the same as it was 53 years ago, except for the small private diversions that have been mentioned to you before.

The security which we offer you for this loan can best be stated by quoting the assessed valuations of our 12 counties as being $345 million in 1952. These values were based upon 1941 indexes in accordance with the new Colorado reappraisal program.

The agricultural pursuits in the valley are much the same as other parts of Colorado, with principal crops of alfalfa, sugar beets, vine and vegetable crops, grains, and so forth. The raising of cattle, sheep, some hogs, and a lot of turkeys provide further farm income.

We are rich in natural resources and excellent transportation facilities, and consequently have many fine industries, which could be enlarged and would be surrounded by many satellite plants if water and additional power were available.

Our cities vary in size from Pueblo, which is the largest one, with 85,000, to Colorado Springs, with 55,000, to La Junta and Lamar with approximately 10,000, and a dozen or more smaller communities such as Rocky Ford, Canon City, Florence, Leadville, Walsenburg, and the like, with populations varying from 600 to 700 people, to 5,000. Many of the smaller communities suffer far more from the shortage of water than do Pueblo and Colorado Springs.

These smaller communities depend upon very small diversions from the Arkansas River and upon wells pumped into such meager storage that should we have a power failure, or well-casing break, they would have little over 3 days' supply of water.

We have many communities in the valley, and the outskirts of the larger ones, where the only source of water is by buying in 1,000-gallon trucks at a cost of $5 per tankload. You have been told of the regulations on irrigation that have been placed in effect for the past several years, so we feel we are conserving to the utmost.

Our farmers pointed out to you that they feel our agricultural loss due to lack of water has been some 30 percent over the past many years.

I am prepared to present to you maps showing these studies as to the various farmers with whom we cooperated in making a study. It shows the location of the farms and their names here.

We feel that should you grant us this loan, we can repay it. We feel the studies we have made, as well as those made by the Bureau, will substantiate this statement, and also the studies made by the Colorado Water Conservation Board. This multipurpose project will not only provide supplemental water so badly needed by our cities, industries, and farmers, but through the construction of the dams referred to in the engineering report, many other things will be accomplished.

We have attempted to tell you that we feel we have exhausted all private resources for future development, that we have the security necessary for the loan which we request, that we believe the resources which can be developed through the Fryingpan-Arkansas project will produce income enough to make repayment of the loan possible, for we want no charity. We know that in granting this loan you will enable us to create values which will be taxable by our local governments and create an additional income which will mean income tax revenues in excess of those presently received by the Federal Government, as well as repayment of the loan requested. We would also become much better customers of the other 47 States in the Union than we are today through the creation of additional wealth and income. We also heartily feel that in this day and age of the atomic bomb, national defense requirements warrant serious consideration of the development of this part of the country which is literally the best fortress which our Government can have.

In conclusion, may we emphasize that the water shortages of the Arkansas Valley in Colorado are not just a recent experience. Farmers and stockmen discovered 50 years ago that if they could get water on our land they could support a most abundant community. They spent many millions of dollars in developing their irrigation systems from the natural stream flow of the Arkansas River, but there was just not enough water to go around every year and the fluctuations in the flow were too great. These shortages produced great crop losses, but still most of them persevered and firmed up every acre-foot of water that could be developed. They created a sound economy in spite of their shortages and risks, and the people continued to come to the cities and towns.

Industry has grown, transportation has grown, cities and towns have grown until today we not only have the problem of supplementing the natural flow of the river, but we must meet the demands of a progressive and live region. The shortage is now two-fold. We are not only short of water for irrigation, but water for domestic and industrial purposes in our municipalities. That is double security for multiple-purpose usage. We solicit your approval and support in behalf of our region which can continue to grow only if it has the financial assistance we need.

Mr. Chairman, I would like to present my full statement for the record.

Mr. HARRISON. Without objection, it will be made a part of the record.

(The statement referred to is as follows:)

STATEMENT OF DAMIAN DUCY, PRESIDENT OF THE WATER DEVELOPMENT ASSOCIATION OF SOUTHEASTERN COLORADO, IN SUPPORT OF THE AUTHORIZATION OF THE FRYINGPAN-ARKANSAS PROJECT, COLORADO

I am Damian Ducy, president of the Water Development Association of southeastern Colorado, and president of my own company, which operates in the real estate and insurance fields. I have lived in Pueblo since the age of two, and can well remember dirt streets and wooden sidewalks. I have served as president of many civic organizations in my own community, State, and on the national level. I submit this statement on behalf of my executive committee, consisting of Harold H. Christy, Frank Hoag, Jr., and John W. Beaty.

Harold H. Christy has lived most of his life in the Arkansas Valley, is an engineering graduate of the Colorado School of Mines, and for many years has been superintendent of the Power and Water Department of the Colorado Fuel & Iron Corp.; Colorado's largest employer.

The second member is Frank Hoag, Jr., a native Puebloan and publisher of the third largest newspaper in the State of Colorado, and, of course, the largest one in the Arkansas Valley. Frank, like myself, has headed up many civic organizations on the local and State level.

The other member of my committee is John W. Beaty, a lifetime resident of Colorado, rancher, farmer, and banker, who lives in Manzanola, an Arkansas Valley community founded by his dad.

First of all, I would like to thank you gentlemen for having arranged the time from your busy days to grant us a hearing as to the Fryingpan-Arkansas project, which is so important to the future of our section of Colorado, and in turn, to the prosperity and well-being of Colorado and these United States. We appreciate the courteous treatment afforded our witnesses to this moment.

We come before you to ask for a loan, and consequently, place ourselves in the position of a borrower who has done business with a small bank which, due to its limited capital, cannot make large loans. We consider you the loan committee of a large bank and your duties as that of having to examine our application and report to the board of directors, which is Congress.

The Water Development Association of Southeastern Colorado was formed in 1943 by many citizens who realized that the Arkansas Valley had exhausted all of its resources to gain additional water through private capital. Many small single-purpose diversions have been accomplished in an effort to increase the water supply, and many wells have been drilled, but our needs have not been met. The founders of our organization, who had invited the United States Bureau of Reclamation in for investigations as far back as 1930, realized that our only chance for survival was the construction of a multipurpose project such as the proposed Fryingpan-Arkansas. This project has been presented to you from the physical, legal, agricultural, and power sides by previous witnesses. This project will not only allow for a small diversion of Colorado River water, but will also serve as a means of flood control, sediment control, will allow falling water to produce hydroelectric power, and will also improve and create wildlife and recreational values. Some 4,000 members of our organizations who request, through me, your consent to the loan which we desire, have resolutions, statements, etc., which I would like to file for the record, backed by 170,000 people well prepared to offer evidence of these facts.

Colorado is known as "The Centennial State," having been admitted to the Union in 1876. However, our civilization goes back to 1850 when our few communities were trading posts, often consisting of not over a few hundred people. We have grown for the past 100 years to a point where we are now thirty-third in population and twenty-second in taxable revenue to the United States, according to figures upon which I rely.

Our resources are quite varied, which is important to a banker, for diversification of assets and energy assures a more stable loan. Our greatest source of income is from agriculture, including livestock raising, and our farm population is 22½ percent of the whole. Our next greatest source of income is from industry, and the Colorado Fuel & Iron Corp., located in Pueblo, is the largest employer of labor in the State. This company is the ninth largest producer of steel in the United States. Next, comes our tourist trade. Some of you, I know, have

visited Colorado and are acquainted with the many attractions which we have to offer, as well as our delightful climate. Although Colorado is thought of as a mining State, this industry is fourth in importance as far as income is concerned.

Physically, Colorado is divided by the Continental Divide, but I am glad to state that our people, totaling some 1,350,000, recognize no such barrier, for we have a fine saying in Colorado that "what is good for one part of the State, is good for all."

Some very interesting studies have been made as to our natural resources, and there is one in particular which I would like to refer to for just a moment, made by Mr. Charles Patterson, an outstanding engineer, on behalf of the Colorado Water Conservation Board. I believe Mr. Patterson is now retained by some entity in the State of California.

As a result of the various compacts relating to the Colorado River, Colorado has been granted the use of 51.75 percent of the upper basin allotment, which roughly figures about 3,800,000 acre-feet, and we are allowed to put this to beneficial use if we take the proper steps in time. We in Colorado use roughly 1,600,000 acre-feet, which means a surplus of better than 2 million acre-feet, before allowing for transportation losses, evaporation, etc.

We ask for diversion of only 70,000 acre-feet, which is less than 4 percent of the water allocated to Colorado which is not now being used.

This Patterson study discloses that in Colorado various important characteristics were notable between the east and west slopes of the Continental Divide, and I submit to you herewith the following figures:

	East slope	West slope
	Percent	*Percent*
Land area	54	37
Water resources	18	68
Irrigated land	49	26
Water production acre-feet per year	1.9	13.4
Arable land, if water	90	5.4

The marked variances mentioned above are, of course, due principally to the topography of the western part of Colorado, for it is there that most of our high peaks are located.

The average rainfall in Colorado varies from as low as 11 inches to as high as 50 inches, with an overall average of 16 inches; however, the historic average is a trifle less than 12 inches in Pueblo County. We have known a year with as little as 6 inches of moisture, and it is said that in 1894 there were but 2 inches. Since the middle of last September, our Pueblo weather station has recorded only a trifle over 4 inches of moisture.

We have found that the average water supply passing through our irrigation systems varies greatly. Some of our better ditches can depend on some 3 to 5 acre-feet per year over a period of 200 days, while others can depend on only 1 acre-foot, if lucky, and that for about 50 days.

The Arkansas Valley and its basin encompasses the bulk of 12 counties in southeastern Colorado. It extends, as Mr. Powell has told you, from Leadville at the top of the Divide, to Holly at approximately the Kansas State line. Also from Colorado Springs at the north, to Trinidad, on the south.

Pueblo is a community of some 85,000 to 90,000 people and is the largest city in the area. The population of the Arkansas Valley in 1900 was 137,000 people; in 1950 there were 265,000 people, and I believe I can safely state that there are 280,000 to 300,000 people today. The water supply is literally the same as 53 years ago.

The security which we offer you for this loan can best be stated by quoting the assessed valuations of our 12 counties as being $345,000,000 in 1952. These values were based upon 1941 indexes in accordance with the new Colorado reappraisal program.

The agricultural pursuits in the valley are much the same as other parts of Colorado with principal crops of alfalfa, sugar beets, vine and vegetable crops, grains, etc. The raising of cattle, sheep, some hogs, and a lot of turkeys provide further farm income.

We are rich in natural resources and excellent transportation facilities, and consequently have many fine industries. These industries could be enlarged and would be surrounded by many satellite plants if water and additional power were

available. We enjoy a very fine strategic position insofar as the Government's industrial dispersion program is concerned, for we are nestled against the Rocky Mountains. Although we are not located exactly in the center of the country, we are afforded a natural defense barrier by our mountain ranges.

The Colorado Fuel & Iron Corp., again Colorado's largest employer and the ninth largest producer of steel, is located in Pueblo. The Pueblo Ordnance Depot employs almost as many as the C. F. & I.; namely, around 7,500. This depot is located east of Pueblo and it is said to be probably the largest depot in the country, and, of course, has been No. 1 in rendering the service necessary in the Korean effort. The Triplex Corp., a large producer of pistons is also located in Pueblo. Timken Roller Bearing has a plant located in Colorado Springs. Camp Carson, a very large defense installation, is located in the same city. Other manufacturing enterprises vary from the largest broom factory west of the Mississippi, to many canning factories, packing plants, lumbering, mining, etc. We also have many fine institutions in our area dependent upon water and power, such as the Colorado State Hospital at Pueblo, housing some 4,500 patients and employing some 1,800 to 2,000 people. Colorado Springs, Buena Vista, Canon City, and Fort Lyon are also the location of many fine and comparable institutions.

Our cities vary in size from Pueblo with 85,000 to 90,000; Colorado Springs with 55,000, to La Junta and Lamar with approximately 10,000 folks and a dozen or more smaller communities such as Rocky Ford, Canon City, Florence, Leadville, Walsenburg, Eads, Holly, etc., with populations varying from 600 to 700 people to 5,000. Mamy of the smaller communities suffer far more from the shortage of water than do Pueblo and Colorado Springs.

These smaller communities depend upon very small diversions from the Arkansas River and upon wells pumped into such meager storage that should we have a power failure, or well casing break, they would have a little over 3 days supply of water. You gentlemen know that a good economy should insure at least a 3 to 6 months' supply. The same shortage has resulted in many of our communities not issuing building permits, restraining the planting of lawns and shrubbery and other means to conserve what little water we have. We have many communities in the valley where inhabitants gain water for household purposes by having it hauled in 1,000 gallon trucks, which costs $5 per tankload. This results in no bathrooms which, of course, means losing some of the nicer conveniences of life and also exposes the people to pestilence and disease. In my own community of Pueblo this year, restrictions as to the irrigation of lawns, shrubbery, etc., were placed in effect in late March, the earliest ever known in our history. With the same restrictions affecting everyday life, our people have suffered in the loss of many prospective industries coming into the Arkansas Valley.

Mr. Ryan has presented to you the outlook of the typical farmer in our many communities. We could have introduced many more practical farmers, but in respect to your time, we merged the various statements into the one presented. Mr. Ryan has pointed out to you that our agricultural losses over the past many years can be safely stated as having been approximately 30 percent due to the lack of water, and our inability to place what water we have in the fields at the proper time.

We have done what we believe is an unusual thing in connection with the study of our project in that our organization with Roy Cooper as chairman of the committee, in conjunction with the Bureau, has held meetings with 300 individual farmers and made case studies as to their needs and to the benefits which might be derived if supplemental water were available. A summation of these studies are being handed to you for the record.

John Beaty, vice president of our organization, has made a very thorough study as to the benefits to be derived, and it is a conservative estimate that where our annual income from agriculture is now $27 million, that with present prices the small amount of water which we ask would increase this annual income to $34 million; or roughly 25 percent.

We feel that should you grant us this loan, we can repay it, and feel that the studies which we have made, as well as those made by the Bureau, will substantiate this statement. This multipurpose project will not only provide supplemental water so badly needed by our cities, industries, and farmers, but through the construction of the dams referred to in the engineering report, many other things will be accomplished.

First of all, flood control is a very important matter to us. Thirty-two years ago the downtown section of Pueblo stood under fourteen feet of water for the better part of three days. The water had rushed down from altitudes as high as 10,000 or 11,000 feet to Pueblo at some 4,600 feet with such great velocity

that warnings were practically impossible. Had the Fryingpan-Arkansas been built at that time, some 100 lives would have been saved, and many millions of dollars of property damage could have been averted, and the wasted water conserved for arid years.

The large dam to be created west of Pueblo will not only impound flood waters, in accordance with decrees on the river, but can be used by mutual agreement among the ditches for storage of water until needed, whether it be conservation of winter runoff, or the usual spring and summer early thaw. This reservoir, by pooling the combined resources of the ditches, will give us great saving through the evaporation wastage now suffered due to many systems supporting shallow reservoirs in the particular areas which they serve. The dams upstream, as well as the one in Pueblo, will catch a tremendous amount of silt each year, which has caused nothing but trouble over the past several decades of our civilization. Quite naturally, these dams will control falling water and allow the creation of hydroelectric power for which a ready mrket can be developed in our section of Colorado. In addition, our engineers will tie the transmission lines in with other systems.

We have tried to present our testimony in as brief a form as possible, recognizing the importance of your time. We hope we have painted a picture for you which will indicate the dire need for the project. We know that some of you have visited our State and the Arkansas Valley, so that you can picture the situation which we have attempted to set forth. We would like to invite those of you who have not been in Colorado to drop in during the summer recess and get a first hand look.

We have attempted to tell you that we feel we have exhausted all private resources for future development, that we have the security necessary for the loan which we request, that we believe the resources which can be developed through the Fryingpan-Arkansas project will produce income enough to make repayment of the loan possible, for we want no charity. We know that in granting this loan, you will enable us to create values which will be taxable by our local governments and create an additional income which will mean income-tax revenues in excess of those presently received by the Federal Government, as well as repayment of the loan requested. We would also become much better customers of the other 47 States in the Union than we are today, through the creation of additional wealth and income. We also heartily feel that in this day and age of the atomic bomb, national defense requirements warrant serious consideration of the development of this part of the country which is literally the best fortress which our Government can have.

In conclusion, may we emphasize that the water shortages of the Arkansas Valley in Colorado are not just a recent experience. Farmers and stockmen discovered 50 years ago that if they could get water on our land they could support a most abundant community. They spent many millions of dollars in developing their irrigation systems from the natural streamflow of the Arkansas river, but there was just not enough to go around every year and the fluctuations in the flow were too great. Those shortages produced great crop losses, but still most of them persevered and firmed up every acre-foot of water that could be developed. They created a sound economy in spite of their shortages and risks, and the people continued to come to the cities and towns.

Industry has grown, transportation has grown, cities and towns have grown until today we not only have the problem of supplementing the natural flow of the river, but we must meet the demands of a progressive and live region. The shortage is now twofold. We are not only short of water for irrigation, but water for domestic and industrial purposes in our municipalities. That's double security for multiple purpose usage. We solicit your approval and support in behalf of our region which can continue to grow only if it has the financial assistance we need.

Mr. DUCY. Mr. Chairman, with your permission, I would like to present several petitions and statements on behalf of those who are not able to be with us this week.

The first one is signed by many leading businessmen throughout the valley.

The second one is a group of resolutions endorsing this on behalf of the Pueblo United Labor League, Brotherhood of Railroad Trainmen, Colorado State Federation of Labor, Congress of Industrial Organizations, Colorado State Industrial Union Council.

The third is a sheaf of resolutions from the Elks, the Pueblo Game and Fish Association, League of Business and Professional Women, Salida Flying and Civic Club, Huerfano County American Legion Post and several others.

The fourth is resolutions on behalf of many of our Lions Clubs, in fact eight of them in the cities from Leadville on down as far as La Junta, Rocky Ford, and Salida.

The fourth exhibit is resolutions of the Rotary Clubs of Pueblo, Rocky Ford, Canon City, La Junta, Walsenburg, and Salida.

Next we have a group of resolutions endorsing the Fryingpan-Arkansas project in behalf of several different organizations: The two ditch associations, Fort Lyon Canan Co. and Fountain Mutual Irrigation Co.; the Farmers Luncheon Club of Colorado Springs; the Colorado Soil Conservation Association and Upper Arkansas Soil Conservation District.

Next we have resolutions from 10 chambers of commerce in our 12 counties and 2 chapters of the junior chamber of commerce, from Colorado Springs, Pueblo, on down to the State line.

Next we have a sheaf of 12 resolutions on behalf of city governments located throughout the Arkansas Valley.

Next I have a statement I would like to enter for the record issued by George Everett, a very prominent man in soil conservation work and president of that organization, if I am not mistaken, in the Arkansas Valley.

Next is a statement by Harry Reese, secretary of the La Junta Chamber of Commerce, on behalf of his organization.

A statement by Milton Andrus of the Pueblo Chamber of Commerce.

A statement by Charles Beise, who has been with us all week.

A statement by John Beaty, vice president of our organization and a cattleman, who is on the sick list this morning.

And a statement on behalf of Harry Barnes, city engineer of La Junta, who in turn reports on the drastic need of water in smaller communities in the valley.

Also a resolution by several REA associations.

Thank you very much for your courtesy which we have appreciated greatly.

Mr. HARRISON. Thank you, Mr. Ducy. The statements will be made a part of the record, and the resolutions will be made a part of the files.

(The resolutions were filed with the committee and the statements referred to follow:)

STATEMENT CONCERNING THE PROPOSED FRYINGPAN-ARKANSAS WATER DEVELOPMENT PROJECT BY GEORGE E. EVERETT, SALIDA, COLO.

For the purpose of identification I, George E. Everett, would like to state that I was born and raised in Chaffee County, as was my father before me. My grandmother came to the county as a child. Her parents homesteaded within the area in the late 1860's. I am the fourth generation that has continually engaged in livestock and agricultural production within the county since that time. I am a member of the Farmers' Union, the Chaffee County Cattlemen's Association, the Colorado Cattlemen's Association, and I am a member of the school board of Adobe Park school, as well as being a member of many other organizations.

The area here under consideration which is utilized for agriculture and grazing, ranges in elevation from 5,330 feet above sea level to 10,500 feet above sea level, with the watershed extending on to 14,400 feet above sea level, consisting of

1,670 square miles of drainage area of which 6,700 acres are under irrigation and the balance is mountain meadow pasture and dryland pasture. The crops of this area consist of general agricultural crops such as mountain meadow hay, alfalfa, barley, wheat, and oats. These crops are used in production of livestock. The livestock raised is principally feeder cattle, feeder lambs, and purebred breeding stock.

The livestock industry at present is largely dependent on State and Federal forest lands for summer grazing, with winter feed being raised on the irrigated lands for the breeding herds during the winter months.

Shortage of irrigation water, causing decreased feed supplies, has resulted in excessive grazing of the private range lands within the area, as well as excessive demands on the State and Federal forest lands for grazing purposes.

A supplemental water supply would result in the planting of more irrigated pasture, increased production of hay, and increased yields of oats, wheat, and barley.

Detailed farm budgets prepared for this area under a cooperative study sponsored by the Southeastern Colorado Water Development Association have shown that loss in gross crop sales varies from $13.33 to $22.57 per acre. Assuming that $15 per acre would represent a conservative average, the total loss in crop sales could well amount to $1 million per year.

The Fryingpan-Arkansas project creating additional water will make possible the reorganization of many of the ditch systems now existing in this area. To illustrate this point, during the irrigation year 1942 there was approximately 255,000 acre-feet of water diverted in water district 11, which includes Lake and Chaffee Counties.

On the average 50 percent of the water is lost in the ditches before it reaches the land where it is to be applied. This means that 127,000 acre-feet of water is lost, so far as crop production is concerned. A very conservative estimate would show that approximately 20,000 acre-feet of this water can be saved as a result of water exchanges, consolidation of innumerable small ditches, and utilization of the project canals as a transportation facility. These savings are dependent entirely on the agreements among the irrigators and the Bureau of Reclamation where their facilities are involved.

Construction of this project will stimulate production of intensive agricultural crops and dairy products during the construction period. It is realized that this is only temporary and is not considered in estimating the agricultural losses accruing in the area.

It is my opinion that this project is of vital importance to the entire Arkansas Valley and should be authorized and completed as soon as possible.

A Statement Supporting the Proposed Fryingpan-Arkansas Water Development Project by Harry C. Reese

I am Harry C. Reese. I have been a resident of Colorado since 1946. From 1947 to 1950 I was manager of the chamber of commerce at Florence, Colo. Since 1950, I have been manager of the chamber of commerce at La Junta, Colo. I am a graduate of Fenn College, Cleveland, Ohio, and of the Southwestern Chamber of Commerce Institute, Dallas, Tex. I am an active member of the Colorado State Chamber of Commerce Manager's Association and of the Mountain States Association of Chamber of Commerce Managers.

My specific purpose in appearing before you is to represent the community development in ten of the smaller communities located in the Arkansas Valley.

The position of the two metropolitan areas located in the project area—Colorado Springs and Pueblo will be represented by other speakers.

The ten communities which I am representing are Leadville, Salida, Canon City, Florence, Walsenburg, Fowler, Rocky Ford, La Junta, Las Animas, and Lamar. These towns are strung out over an area that is approximately 300 miles in length from Leadville on the west, located near the headwaters of the Arkansas River to Lamar on the east located 32 miles from the Colorado-Kansas line.

From the census figures in 1930 these ten communities had a total population of 41,051. By 1940, these communities had an increase in population of 3,002, for a total of 44,053. By 1950, this population had increased to 50,777 or an increase of 6,724 over the 1940 figures.

The introduction of supplemental water into the Arkansas Valley in the proposed Fryingpan-Arkansas project effects our area in two ways. First, let me discuss with you the effect upon the living conditions of our people by giving you a picture of the present situation and the anticipated improvement with supplemental water.

We are seriously short of domestic water in our towns. West of Pueblo, communities depend on streamflow diversions or mountain watersheds for municipal use. East of Pueblo, supplies are largely from shallow wells. These latter communities have storage facilities equal to 1 day's supply or less. Pumping capacities are taxed to the limit during the period of June through September. In the summer months, municipalities maintain a constant and desperate struggle to keep water supplies in line with peak demand.

During the 4-month period of peak demand drastic restrictions are placed on domestic users. The use of water for lawns and gardens is banned during most of the day in this period, so that adequate supplies will be available and line pressure maintained.

While the quality of the water in five of the communities west and south of Pueblo is not too bad, the other five towns have supplies with excessive sulfates resulting in water that averages about 50 grains hardness per gallon.

This hard water causes an equal burden to the housewife, the municipality and the industrial user. To be satisfactory for household use, this water must be treated or the soap bill soars, the dishes are streaked, the clothes not clean, and the scrubbed floors spotted.

It is common in this area for domestic users to purchase water from commercial wells in order to get a reasonable supply of soft water for household use. This water, stored in cisterns, is often hauled for several miles at an average cost of five dollars per thosand gallons.

In city mains, this hard water causes serious encrusting and rapid deterioration of pipes. Water line breaks, valves that are eaten out are all costly to municipal operations. The industrial user is plagued in the same manner in his boiler systems and in his processing water. The cost of building a treating plant to render the water acceptable for industrial use very often is equal to the cost of building and equipping the plant itself.

With the availability of supplemental water for domestic use, a large share of the problems of lack of municipal water supply and lack of quality water would be eliminated. The use of the proposed Pueblo reservoir for the storage of municipal supply would overcome the present lack of storage.

The availability of quality water of 4 to 6 grains hardness per gallon chlorinated in the proposed Pueblo treating plant and made available by pipeline to the towns east of Pueblo would far surpass the quality of the present supply.

The need for a supply of quality water for human consumption is paramount. We are short of this water now. Our population is on the increase. We strongly feel that the development of additional domestic water in the Fryingpan-Arkansas project is necessary to maintain our present population level and allow us a norml rate of growth in our communities.

The second effect of the introduction of supplemental water is in the economic pattern of the area. Basically, this is an agricultural area. Farming and ranching, irrigated and dryland, extends the length of the Valley and is the basic structure of the area.

With this economy, the processing of agricultural products is important. The refining of sugar beets, canning of fruit and vegetable crops, feeding and processing of livestock, the production of animal feeds, and organic fertilizers, and recently the new development of chlorophyl extraction are all important operations in the communities of the area.

Raw materials available in the area play a strong part, too. Within the region are deposits of feldspar, fluorspar, lead, zinc, manganese, gold, silver, nonmetallics, oil, and coal. Many of these raw materials are in various stages of productive development, others are virtually dormant.

Colorado's tourist business, a $220 million operation in 1951, is of much importance to the Arkansas Valley area. For upon it depends thousands of small independent businessmen. Motel and resort operators, filling stations, restaurants, sports dealers and many others make the livelihood from those who come to see and enjoy Colorado's majestic peaks and scenic beauty.

Each of these economic phases is important to the well being of our area. Each phase suffers and is limited by water supply and quality.

The increased efficiency of existing irrigation ditch systems can only be brought about by supplemental water. The urgent needs for domestic water and for industrial water have been filled at the expense of agriculture. Limited crops and low yields are an old story to our farmers. Droughts, low runoff periods, and overappropriated water rights all take their toll of agricultural production.

National markets for high quality Colorado grown products such as sugar beets, onions, cantaloupes, vegetables, seeds, and alfalfa meal already exist. With supplemental water, Arkansas Valley farmers can grow higher cash value crops and increase their yields of the existing crops. This is sound development and it will materially strengthen the economic basis of the entire region.

The production of fine Colorado beef, lamb, and turkeys is on the increase and finds a ready market throughout the Nation. Increased feed supplies in the project development will greatly enhance this type of foodstuff production necessary to a growing national population.

Strategic minerals and nonmetallics processed in the project area are now limited by lack of power and water. The major production is in copper, lead, zinc, gold, and silver. Other metal development prospects are in aluminum, bismuth, cadmium, iron, manganese, molybdenum, and nickel.

Among the producers, the Reynolds Mining Co. in the Salida area indicated that their fluorspar operations will be limited in the near future by lack of water and power. The Resurrection Mining group in the Leadville area in their production of lead, zinc and other strategic metals will be hampered to some extent by water but mainly by lack of power.

Coal is a large resource in the Walsenburg, Florence and Canon City area. The trend toward the use of coal in high temperature processing for byproduct extraction and the production of synthetic fuels is rapidly coming upon us. To develop these large deposits of both high and low grade coals, supplies of water and power must be available.

There are instances of existing industry being limited by the lack of quality water. Canning plants in the area are hampered both by the lack of agricultural water as well as the lack of a quality supply for processing. Sugar beet companies have been faced with water shortages in the midst of their processing campaigns in the fall. The Santa Fe Railroad at its division point in La Junta treats 61 grain water to 1 grain hardness on an average of over 7 million gallons per day. A savings of thousands of dollars annually would occur if a better quality water were available.

The availability of quality water and hydroelectric power from the proposed Fryingpan-Arkansas project would stimulate the expansion of vast mineral resources in the area. Existing industry unhampered by the lack of water and power would expand and develop at rate consistent with market demands.

With supplemental water and power bringing increased agricultural yields, greater livestock production, expansion of industry and raw material development a far broader taxing base would come into being in the project area. The increases to local and State taxing units, along with the enhancement of Federal tax receipts, would come as a natural result of the project development.

The tourist business, an important facet of our area, would receive a tremendous boost in both eastern Colorado and western Colorado from the development of the recreational features of the proposed project. It is important to note that this project is the first in Colorado to be planned with the full cooperation of Federal, State, and local fish and wildlife interests. Thousands of independent small-business men who work to serve the tourist industry will be directly benefited as the project materializes.

To summarize: The Arkansas Valley has been and is now seriously short of domestic, agricultural, and industrial water. The importation of surplus water from western Colorado to our deficient area in eastern Colorado is our only feasible means of acquiring water to maintain our living conditions and economy.

Through their association together and through the proposed formation of conservancy districts, the people on our area have demonstrated that they are willing to repay a large share of the project costs through the purchase of water and the purchase and sale of power.

For the people of the Arkansas Valley, first and foremost, additional water is a must. To expand and develop industry and natural resources, supplies of quality water and available power are a must. If our area is to maintain the existing economy, to better our living conditions and to expand to a maximum development to take our place in a strong healthy nation, we earnestly request that you give every favorable consideration to the early construction of the Fryingpan-Arkansas project.

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STATEMENT SUPPORTING THE PROPOSED FRYINGPAN-ARKANSAS WATER DEVELOPMENT PROJECT BY MILTON H. ANDRUS

I am Milton H. Andrus. I have been a resident of Colorado since 1930. From 1946 to 1949 I was manager of the chamber of commerce at Canon City, Colo. Since that time I have been manager of the chamber of commerce at Pueblo, Colo. I am a graduate of Colorado State College of Education at Greeley, Colo., and of both the Rocky Mountain Chamber of Commerce Institute, at Missoula, Mont., and the National Institute of Chamber of Commerce and Trade Organizations at Northwestern University, Evanston, Ill. I am an active member of the Colorado State Chamber of Commerce Manager's Association, of which I am a past president, and of the Mountain States Association of which I am currently president. For the past 3 years I have been, and will continue to be, a member of the Colorado State Planning Commission. This group has to do with statewide planning in many areas, but especially for the 23 institutions maintained by the State. My purpose in appearing before this group is to represent the business and commercial interests of Pueblo, Colo., in presenting the desperate need for more water to supply the municipal, industrial, especially from a defense point of view, and commercial development of this pioneer western city.

ESSENTIAL ECONOMIC DATA—PUEBLO, COLO.

Pueblo is an historic commercial and trading center. It has been since the 1600's when the Spaniards first began to come into this area. Located as it is and at the confluence of the Fountain and Arkansas Rivers, it has been a crossroads of commercial traffic since its very beginning. As the white man came into the area, Pueblo took on permanent form and began to develop. It is interesting to note that the growth of this famed industrial city of the Rocky Mountain West has always been governed by the limiting factor—water.

In the days of 1949 the present site of Pueblo was a trading place for Indians and white trappers of the then perilous frontier. However, by 1870, the trading advantages of the Pueblo location had brought about a settlement of some 500 persons and they incorporated the struggling community as a town. About 1872 the Denver & Rio Grande Western Railroad made its appearance in the Pueblo area and some 15 years later, they were followed by the Atchison, Topeka & Santa Fe, the Colorado & Southern, and the Missouri Pacific.

In 1879 the present Colorado Fuel & Iron Corp was incorporated and Pueblo's strategic location won for it selection as the site of the first western steel mills. Within the next few years the smelters came to Pueblo as Colorado's mining industry reached its zenith. The smelters, of course, disappeared from the scene when the economy of the country made some mining impractical but the steel mills continued and other industries have come to join the industrial community of Pueblo until today it has become a city of many manufacturers and processors, a railhead of national importance, center of airline activity, and a focal point for more than a score of truck and bus lines.

As the years have come and gone, Pueblo has developed only as rapidly as water has been developed. Today, this city is playing an increasingly important role in the defense of our country as well as in the normal growth of the Rocky Mountain West.

Since 1940 Pueblo has grown at a much more accelerated rate than was dreamed possible and to go forward serving this region and the Nation effectively, more water and more power must be developed.

There have been many interesting and effective economic developments outside the field of prime industry as Pueblo has grown. This city has become the center of a wholesale trade area populated by some 600,000 people and a retail area inhabited by 200,000 people. Pueblo has become the key city of the region being the major community located on the Arkansas River within the great State of Colorado.

PHYSICAL LOCATION OF PUEBLO, COLO.

Geographic: Latitude, 38.16 seconds north; longitude, 104 minutes 36 seconds west; altitude, 4,690 feet.

Pueblo is located in southeastern Colorado at the foot of the Rocky Mountains. Geographically it is somewhat west of the center of the United States but from the standpoint of transportation it is practically the center. The terrain has a gradual eastern slope averaging 10 feet to the mile. Pueblo is the major city in the Arkansas Valley within the State of Colorado. The valley is the home of a vast agriculture industry that is greatly diversified ranging from a stock-feeding

industry to the production of seed, fruits, and vegetables. This community is also the gateway to eastern and southern tourists seeking the scenic grandeur and tremendous recreational advantages of the Colorado Rockies. However, the city is primarily an industrial and commerical one. Its growth has been steady, but the rate of growth has been greatly accelerated during the past 10 years due to the war effort and would have grown even faster had it not been for the ever present and limiting factor of water. Today, Pueblo is playing a tremendous part in defense production, as well as, being the key to normal growth throughout the Rocky Mountain region. If Pueblo is to continue to grow and therefore to be more useful to the Nation and the region, the development of more water and the creation of more power for the future must be carried on as rapidly as possible. The locality's climate is best presented by the following exerpts from United States Weather Bureau records:

Average mean temperature: 51.9° (60 years of record).
Average annual precipitation: 11.89 inches (60 years of record).
Average annual snowfall: 29.1 inches (60 years of record).
Average annual sunshine percentage: 74 (49 years of record).
Average relative humidity: 37 per cent (31 years record).
(11:30 a. m.)

Pueblo is the most northern city in the winter sunshine zone. Its year-round climate fosters maximum labor efficiency and encourages constancy of labor supply. Local industries list the moderate climate as one of the most important assets in their operation. The Pueblo Ordnance Depot finds the combination of 9 hours average sunshine, low humidity, and high altitude ideal for storage and maintenance of vehicles, machines, tools, guns, and ammunition.

Water supply is from the Arkansas River and standby wells.

Two municipally owned and operated water districts serve the city. Water is given full treatment including chlorination before entering mains. Its source is the nearby Rocky Mountains which furnishes good water, ranging in quality from 12 to 20 points of hardness.

Population

Year	Pueblo County	Pueblo City	Metropolitan area	Year	Pueblo County	Pueblo City	Metropolitan area
1890	31,491	24,558		1930	66,038	50,096	
1900	34,448	28,157		1940	68,870	52,162	62,039
1910	52,223	41,747		1950	90,188	63,685	82,500
1920	57,638	43,050					

Metropolitan population has been recently added because of the large growth and development just outside the present city limits.

Note that the population City of Pueblo increased 21 percent in the last 10 years with an even greater increase in the metropolitan area.

Population classification, Pueblo County, 1940, all classes

	Population	Percent
Male	34,516	50.2
Female	34,354	49.8
Native white	61,561	89.4
Foreign-born white	5,889	8.4
Negro	1,420	2.1

Comparative business index retail sales

Net sales:		Net sales—Continued	
1933	$13,693,000	1946	$53,755,000
1935	16,507,000	1947	75,700,208
1939	22,830,000	1948	111,673,716
1941	27,977,000	1949	114,000,000
1942	31,334,000	1950	114,776,000
1945	41,040,000	June 30, 1950 to June 30, 1951	137,881,000

STATEMENT CONCERNING THE PROPOSED FRYINGPAN-ARKANSAS PROJECT—LEGAL ASPECTS, SUBMITTED BY CHARLES J. BEISE

My name is Charles J. Beise. I am an attorney at law engaged in private practice in Denver, Colo.—a partner in the firm of Fairfield and Woods. I have practiced for approximately 20 years. During that time I have served as counsel for the Vallecito project and the Mancos project, both of which are in Colorado. I have been counsel for the Water Development Association of Southeastern Colorado since its organization.

I. PROJECT WATER SUPPLY

By the terms of the Colorado River compact there has been allocated to the upper basin States a consumptive use of 7,500,000 acre-feet of water, subject to the provisions and conditions of that compact. By the terms of the Upper Colorado River Basin compact of October 11, 1948, Colorado has been apportioned the consumptive use of 51.75 percent of the water available for use in the upper basin after deducting the 50,000 acre-feet annually to which Arizona is entitled. Colorado's apportionment is therefore estimated to be approximately 3,855,000 acre-feet annually. Exclusive of the Fryingpan-Arkansas project, and considering all projects presently constructed or authorized and all water consumption by private irrigation at the present time, it is estimated that Colorado uses approximately 1,590,000 acre-feet. In other words, there is available for future irrigation requirements in Colorado 2,265,000 acre-feet. It has been estimated that of this amount approximately 440,000 acre-feet should be reserved to meet Colorado's share of depletions on main stem reservoirs for long-time holdover storage on the Colorado River to make the water available for the upper basin under the Colorado River compact. Accordingly, approximately 1,825,000 acre-feet annually will remain for future use in Colorado. Thus the Fryingpan-Arkansas project diversion of approximately 70,000 acre-feet would require and use less than one twenty-fifth of the estimated water available for future requirements of the State of Colorado. In other words, after the requirements of the Fryingpan-Arkansas project have been satisfied, there will still be available approximately 1,750,000 acre-feet of water annually to meet other potential uses of Colorado River water in Colorado.

As far as the interests of other States are concerned, attention is directed to the operating principles to be hereafter discussed, which are the result of over 2 years' negotiations between water interests in western Colorado, that is, water users west of the Continental Divide and within the State of Colorado, and water users on what is known as the eastern slope of the State of Colorado. It is safe to state that no other project in Colorado has ever been studied as thoroughly as has the Fryingpan-Arkansas project. Greater precautions have been taken for the benefit of the western slope of Colorado and, indirectly and ultimately, for the interests of the other States of the Colorado River Basin in connection with this project than any other project ever devised.

Eastern Colorado, where the project waters will be consumed, will become a part of the "Colorado River Basin" under article II (b) of the Colorado River compact.

The benefits from the project are not limited to the importation of Colorado River water alone, but the project contemplates additional benefits derived through the reregulation of the waters of the Arkansas River. In connection with this proposed saving, the terms of the Arkansas River compact between Kansas and Colorado entered into on December 14, 1948, must be considered. The compact made specific provision for the proposed Fryingpan-Arkansas project by including therein the terms of article 4–d which reads as follows:

"This compact is not intended to impede or prevent future beneficial development of the Arkansas River Basin in Colorado and Kansas by Federal or State agencies, by private enterprise, or by combinations thereof, which may involve construction of dams, reservoirs, and other works for the purposes of water utilization and control as well as the improved or prolonged functioning of existing works; provided that the waters of the Arkansas River, as defined in article 3, shall not be materially depleted in usable quantity or availability for use to the water users in Colorado and Kansas under this compact by such future development or construction."

No material depletion in usable quantity or availability for use to the water users in either State is contemplated by reason of the anticipated benefits. Attention is directed to the comments of the State of Colorado, paragraph 6 thereof, which provides as follows:

6. Colorado calls attention to the fact that the project, its operation, maintenance and the use of Colorado River water thereunder, must be subject to the provisions of the Colorado River compact of November 24, 1922 (H. Doc. 605, 67th Cong., 4th sess.). The Upper Colorado River Basin compact of October 11, 1948 (Public Law 37, 81st Cong., 1st sess.), and the Boulder Canyon Project Act of December 21, 1928 (45 Stat. 1057–1064). Further reference to this matter appears in these comments in connection with the subject of "Operating Principles." The features of the project and their operation for the storage and reregulation of the native waters of the Arkansas River are subject to the provisions of the Arkansas River compact of December 14, 1948 (Public Law 82, 81st Cong., 1st sess.) between Colorado and Kansas. On July 24, 1951, the Arkansas River Compact Administration, an agency created by the compact for its administration, after a review of the project report and consideration of the effect of the operation of the proposed project on the administration of the provisions of the compact, adopted the following resolution:

"WHEREAS there has been submitted to the States of Colorado and Kansas by the Secretary of the Interior, in accordance with provisions of section 1 of the 1944 Flood Control Act, a report of the Bureau of Reclamation on the proposed initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado (Project Planning Report No. 7–8a.49–1) and such States are required to transmit to the Secretary of the Interior their respective official comments and recommendations on the report and proposed development; and

"WHEREAS the Arkansas River Compact Administration, an official interstate body created by the Arkansas River compact and charged with the administration of such compact, is interested in the proposed development to the extent that its construction and operation shall not interfere with the rights, interests, and obligations of Colorado and Kansas under the compact: "Now be it

Resolved by the Arkansas River Compact Administration that the following comments and recommendations relating to said report of the Secretary of Interior, to wit:

"The Arkansas River Compact Administration submits these comments and recommendations to the Governors of Colorado and Kansas respecting the proposed initial development, Gunnison-Arkansas project, Roaring Fork Diversion, Colorado, namely:

"1. The Administration understands that the project plan proposes:

(a) The importation by appropriate project works of approximately 70,000 acre-feet of water a year from the Colorado River Basin to the Arkansas River Basin for supplemental irrigation and domestic water supplies in Colorado and for the production of hydroelectric energy.

"(b) In connection with such importation of water and its regulation in the Arkansas River Valley by project works, the reregulation of native waters of the Arkansas River (the term 'native waters', as herein used, being those waters covered and defined by article III–B of the Arkansas River compact).

"2. The interstate water relations of Colorado and Kansas with respect to the Arkansas River do not justify any objection to the proposed project development for the importation of Colorado River water (described in subparagraph (a) above).

"3. The reregulation of native waters of the Arkansas River (native waters being as above mentioned) concerns the Arkansas River Compact Administration and both Colorado and Kansas in complying with the provisions of the Arkansas River compact and maintaining the benefits and obligations of the two States under that compact. To that end, it is recommended to the Governors of Colorado and Kansas, and expressed as a policy of the Arkansas River Compact Administration, that the initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado, as set forth in Project Planning Report No. 7–8a.49–1 of the Bureau of Reclamation, be approved: *Provided, however,* That there shall be no reregulation of native waters of the Arkansas River as proposed in such report until a plan of operation, rules, regulations, procedures and agreements in furtherance thereof, including any pertinent agreements between the Corps of Engineers and the Bureau of Reclamation, shall have been submitted to, and approved by, the Arkansas River Compact Administration and the affected water users.

"4. It is the purpose and intent of these recommendations that the proposed project development shall not interfere with or defeat the rights, interests, and obligations of Colorado and Kansas under the Arkansas River Compact.

be transmitted to the Governors of the States of Colorado and Kansas and such Governors be and are hereby requested to submit the same to the Secretary of Interior with their official State comments and recommendations upon said proposed project and development."

Colorado interprets and understands that paragraph 3 of the resolution of the Arkansas River Compact Administration is controlled by paragraph 4 thereof; and that the words "affected water users" in said paragraph 3 mean only water users in the State of Colorado so long as Colorado complies with the terms of said compact.

Of the estimated approximately 185,000 acre-feet to be made available as supplemental irrigation water at canal headgates in the Arkansas Valley through the facilities of the Fryingpan-Arkansas project, the diversion of 69,200 acre-feet of water from the Colorado River will produce a net headgate supply of an estimated 53,700 acre-feet. The remaining 132,000 acre-feet to be made available by the project will come as a result of capturing Arkansas River floods, return flows from increased municipal supplies, and savings from better utilization methods including those resulting from the abolition of direct winter diversions and converting them into storage rights to be utilized during the summer irrigation season. At the present time there is diverted directly to the lands during the winter months approximately 160,000 acre-feet of water in Colorado. Of this 160,000 acre-feet it is estimated that 93,000 acre-feet can be converted into storage, or a net production as a result of this saving after losses chargeable thereto of some 74,000 acre-feet of water. In addition, it is currently estimated that 50,000 acre-feet of water are lost annually as a result of reservoir evaporation, mostly from private reservoirs at low elevations in the Plains area. By moving this storage upstream to deep project reservoirs, this evaporation loss can be substantially reduced. The estimated 185,000 acre-feet to be made available by reason of the construction of this project does not include such possible evaporation savings. At the present time there is an estimated average annual headgate shortage for irrigation requirements of presently irrigated lands of 340,000 acre-feet. If the project is constructed it will reduce this shortage to approximately 155,000 acre-feet, or a reduction from 35 percent shortage of ideal requirements to approximately 16 percent shortage.

In other words, there is and will be at all times a greater demand for water than that which can be made available by this project. The proposed reregulation of winter flows will entail the execution of contracts with the affected water users. Most of the water users of the valley in Colorado have been contacted. Without exception, all have indicated a general interest in the possibilities of water savings through reregulation of winter water use. The same is true of possible evaporation savings. Neither plan would interfere with any of the water rights of the State of Kansas.

All that is required to perfect the acquisition of water rights for the project is to make a water filing pursuant to the terms of the laws of Colorado and as provided by section 8 of the reclamation law of 1902. As soon as the project has been authorized, the project propoentns will make a filing with the State engineer of the State of Colorado for all of the waters required for the project, both on the Colorado and Arkansas Rivers. Thereafter, as promptly as possible, a conditional decree will be procured adjudicating and establishing the rights of the project to this water. The foregoing statement with reference to project water supplies and the acquisition of title thereto is limited to the eastern slope works. Insofar as the rights to store water in Aspen Reservoir are concerned, as provided in the operating agreement, they shall be acquired under the laws of the State of Colorado, but title thereto shall be initiated and acquired by and held in the name of the United States.

II. AUTHORIZATION AND OPERATION OF FRYINGPAN-ARKANSAS PROJECT

S. No. 964 authorizes the construction and operation of the project, in accordance with the plans set forth in Senate Document No. 106, 82d Congress, 2d session, and in accordance with recommendations E to K set forth on pages 25 and 26 of that document, which we will hereafter discuss as the operating principles. The bill preserves all of the provisions of Senate Document No. 80, 75th Congress, 1st session, for the benefit and rights of western Colorado water users in and to Green Mountain Reservoir of the Colorado-Big Thompson project (sec. 3). As the committee will recall, the Colorado-Big Thompson project contained as one of its essential features a compensatory reservoir for the benefit of western Colorado water users known as the Green Mountain Reservoir located on the Blue River above the town of Kremmling, Colo. Because of various conflicting contentions

as to the interpretation of that document, it was felt that if the bill authorizing the Fryingpan-Arkansas project made no reference to Senate Document No. 80, it could be argued indirectly that Congress had subsequently adopted the point of view of one side or the other as to the interpretation thereof. To prevent such possible contention and to assure the citizens of western Colorado that their rights remained intact under Senate Document No. 80, section 3 of the bill was inserted.

Section 4 of the bill was made necessary by the language contained in section 12 of the operating principles hereinafter discussed. Suffice it to say at this point that the municipal requirements of Colorado Springs and Pueblo, as well as the other valley towns, were admitted by all parties involved. Inasmuch as some 15,000 acre-feet of project water have been tentatively allocated for such municipal requirements, which tenative allocation was used in a large part as justification for constructing the project insofar as negotiations intrastate in Colorado were concerned, the western slope interests desire to have language inserted in the operating principles to the effect that domestic purposes would be preferred over all others. This provision possibly is inconsistent with other provisions of the reclamation laws, which prefer irrigation. Accordingly, in order to carry out the terms of the operating principles, it was necessary to specify that domestic use be preferred. This is satisfactory to the water users in both eastern and western Colorado and is considered by the project proponents to be an intrastate matter limited to a minor phase of the project.

Section 2 of S. 964 was made necessary by reason of the creation of a commission to administer the operating principles, and it specifically authorizes the Secretary of the Interior to appoint the two representatives of the United States to the Commission. The Secretary is further authorized to agree to modifications of the operating principles recommended by the Commission, provided, of course, that the recommendations are not inconsistent with the principles themselves. As there is no provision in Federal law for the appointment of such commissioners, it was necessary to add section 2 to the authorizing legislation.

Section 1 of S. 964 simply authorizes the construction of the project, subject to the limitations of the various international and interstate water compacts. The operation is to be consistent with recommendations E to K, both inclusive, of the regional director. These recommendations provide that the project will be operated in accordance with the operating principles; that before any municipal water supply system is constructed it will be necessary for the communities involved to prove their inability to construct or to finance the construction themselves, either singularly or jointly, and then before any such construction can be undertaken, a contract must be executed whereby the municipalities are bound to repay the costs thereof within 40 years, as well as interest thereon at the rate of 2 percent per annum, and to assume all operation, maintenance, and replacement costs of the works during the interim. Sections H and I of these recommendations authorize the Secretary of the Interior to establish rates for the sale of municipal, industrial, and irrigation water supplies and make possible flexible contracts, both as to their duration and the rates of charge therefor. Flexible provisions were requested by the proponents of the project because of the inflexibility of the ordinary irrigation project repayment contract. An analysis of such contracts indicates that frequent amendments are necessary by reason of the change of project plans, economic conditions, or repayment ability of the users. Under Colorado law repayment contracts must be approved by the water users and confirmed by court decrees. This provides a most inflexible arrangement. It has been necessary in connection with projects in other States for the Secretary of the Interior to seek authorizing legislation from Congress enabling him to enter into amendatory contracts. This is very costly, inflexible, and unsatisfactory from the point of view of both the Federal Government and the water users of the States. As a result of this experience, project proponents have requested the act to contain legislation which would make the duration of the contracts and all other provisions thereof subject to constant negotiation. It is believed that at the outset water allotments will be made for relatively short intervals of time, possibly 1 or 2 years' duration. This is believed possible and desirable because the demand for water will so far exceed the supply that there will be a certain market at all times. Furthermore, should there be a surplus in any one or series of years, it would be accumulated by the project in the upper storage reservoirs and available there for the production of electric energy which is a most desirable feature of the project operations. All other provisions in sections J to N, both inclusive, are self-explanatory.

An analysis of the operating principles is next in order. Section 1 of the operating principles simply contains a definition of terms. Section 2 provides

for the construction of Aspen Reservoir with a capacity of 28,000 acre-feet near the town of Aspen, Colo. Section 3 makes the cost of construction and operation of that reservoir a charge against the project. Section 4 states that the same must be completed before any water is diverted to eastern Colorado by means of the project. This assures the western slope interests in Colorado that the reservoir will be constructed as a part of the project and will be built before any waters are taken out of the basin. Sections 5, 6, and 7 relate to the method of water releases from Aspen Reservoir. Section 5 incorporates the provisions of the laws of Colorado for the protection of in-basin users and provides that the project will be operated just as though it had been constructed by a water-conservancy district organized under the State laws. Water-conservancy districts will be hereafter discussed. In the main, it is simply a form of entity, originally peculiar to Colorado and now adopted by several other States, which has replaced the common concept of an irrigation district. Section 6 makes the first responsibility and obligation of Aspen Reservoir to replace waters to western Colorado by reason of any losses from stream depletions caused by the operation of the project. All present uses are protected and all future uses except power generation, and they are specifically enumerated—required winter flows, as well as industrial demands of 300,000 acre-feet, which is the estimated amount of water which might possibly be required in connection with the development of oil shale in the vicinity of Rifle, Colo. Whenever any of these specified uses are short of water they may request the State engineer of Colorado to make a release. This request is then conveyed to the United States, and the required water must then be released without charge. Section 7 deals with that portion of Aspen Reservoir which is not required for replacement capacity. In other words, there may be times when the reservoir will have water in excess of that which is required for full replacement needs as defined in sections 5 and 6. This surplus water may be sold to western-slope water users in Colorado. Any charge therefore shall be comparable to that assessed against project interests in eastern Colorado with appropriate adjustment for repayment ability. The last sentence thereof has to do with the resultant increase in cost of supplemental supplies made necessary by the construction of the project. In other words, if a western-slope water user is required to construct some irrigation feature which he would not have been required to build if the project had not been built, the difference in cost to him of such acquisition shall be considered in establishing rates for the sale of surplus water from Aspen Reservoir to such user.

Because of possible demands on Lime Creek it was agreed that diversions therefrom would be restricted to the months of high runoff, that is, May and June of each year.

In order to protect recreational and fishing values on the western slope where the tourist industry is a major one, and because of the experience encountered on other projects in the West, from the very inception of project planning the Game and Fish Department of the State of Colorado, as well as the Fish and Wildlife Service of the United States Government, have been constantly contacted and consulted concerning this project. As a result of those negotiations and discussions, sections 9 and 10 have been inserted in the operating principles. Section 9 is limited to the Fryingpan collection system, and the minimum flows therein specified are those which the recreational interests of the State and Federal Government consider to be adequate for the protection of fishing values. Two points of control have been designated, that is, the points of diversion collectively of the project and the junction of the North Fork and Fyringpan near Norrie. The flow specified cannot be less than the minimums set forth at either point.

In 1938, the Twin Lakes Reservoir & Canal Co., a private enterprise, completed a transmountain diversion project whereby waters were diverted from the Roaring Fork River and made available for use on lands in the Arkansas Valley. This private project obtained a water right as provided by the laws of the State of Colorado. Project damands if superimposed on Twin Lakes demands could result in damage to fishing and recreational values. Section 10 makes possible an exchange so that the Twin Lakes Reservoir & Canal Co. may obtain a like quantity of water from other sources without expense to it. This is accomplished by the extension of a canal on Hunter Creek and is a prior demand on the project to the extent of 3,000 acre-feet annually. The minimum stream flows specified in section 10 were established by the United States Fish and Wildlife Service and the Colorado Game and Fish Commission. The Twin Lakes Reservoir & Canal Co. has been contacted and has agreed in principal to the proposed exchange on the assumption, of course, that their water rights will not

be impaired, nor will there be any charge imposed upon them by effecting such exchange. In other words, they are voluntarily relinquishing their natural flow rights to divert water, provided the project makes available a substitute source of a like amount without charge. However, section 10 does provide that if the Twin Lakes Reservoir & Canal Co. derives additional water or other advantages that it could not have realized had the project not been constructed, the operating principles shall not prevent the project from making an appropriate charge for such benefit or advantage.

Section 11 was inserted at the request of western Colorado citizens and the Colorado Game and Fish Department. The experience in connection with the Colorado-Big Thompson project, especially Shadow Mountain Lake, has indicated the vast amount of recreational demand made upon project areas. It is reasonable to anticipate a like demand in connection with Aspen Reservoir and possibly the enlargement of Twin Lake Reservoir on the eastern slope. Accordingly, it was felt desirable to preserve these features for the benefit of the public except as to strategic areas, the reservation of which is deemed administratively to be essential for operating purposes.

Sections 12 and 14 have already been discussed. Section 13 of the Operating Principles was requested by western slope water users by reason of the terms of the Colorado River Compact and because of their interests in seeing that the greatest possible benefit was derived by water users in the Arkansas Valley by the importation of Colorado River waters.

Section 15 makes the project subject to the various compacts and acts therein designated. In addition, it establishes the priority of Aspen Reservoir over other features of the project required for eastern slope diversions. This is, however, limited to the capacity of Aspen Reservoir. In other words, although all tabulations made indicated that the situation therein contemplated would never arise and, from a practical standpoint, the problem is academic, nevertheless, for the protection of western Colorado water users, it was agreed that if any curtailment of Colorado River water users is required in the State of Colorado by the terms of the Colorado River Compact or the Upper Colorado River Basin Compact, eastern slope water users shall be curtailed up to the capacity of Aspen Reservoir before there is any curtailment of the storage right in Aspen Reservoir.

Section 16 requires the water rights for Aspen Reservoir to be initiated and perfected in the name of the United States, as has been heretofore pointed out. Likewise, as far as the eastern slope project works are concerned, it is optional for the Secretary to obtain or to require the transfer to the United States of any water rights initiated or acquired—that is, project proponents could file on the water rights for the eastern slope project features and obtain a decree thereto. That decree when obtained could, on demand of the Secretary of the Interior, be transferred to the United States for the project. There is expressly excepted from this provision, however, vested rights to present appropriations.

Section 17 establishes a commission composed of 5 men, 1 representing eastern Colorado, 1 representing western Colorado, 2 representing the United States, and 1 representing the State of Colorado at large. This is a most important provision and provides a tribunal before which the Operating Principles as applied to changing conditions can be presented for discussion and recommendations.

III. CORPORATE ENTITY FORM TO OPERATE DISTRICT AND TO REPAY PROJECT COST

Prior to the authorization of the Colorado-Big Thompson project, all reclamation irrigation projects in Colorado had been financed by water users organizing either as irrigation districts or as water users' associations. There were 2 irrigation district laws, 1 passed in 1905 and the latter in 1921. When the Colorado-Big Thompson project was conceived, a reappraisal of the State legislation was made. As a result, a tailormade corporation was devised, based in part on the Golden Gate district in California, the Metropolitan Water District Act of Utah and of California, and other corporate acts of Colorado such as the Conservancy Act, the Moffat Tunnel Improvement District, and the old irrigation-district laws. The result is known as the Colorado Water Conservancy District Act of 1937. This act provided for the formation of quasi-public corporations. There have been thus far some seven conservancy districts organized in connection with different reclamation projects in Colorado, the largest of which is the Colorado-Big Thompson project and the smallest of which is the Mancos project. In the Fryingpan-Arkansas project the proponents propose to organize a water-conservancy district covering all or parts of some 12 counties and reaching from

the Continental Divide in Lake County at Leadville, Colo., to the Kansas-Colorado line.

In general, the exterior boundaries of the area included within the district would be those lands presently irrigated and which could receive indirect or direct benefits from the project without requiring new facilities to serve such lands. Inasmuch as no excess water will be produced by the project, there will be no effort to include raw or unimproved arable lands. The district when organized will have a board of directors and the power to administer its own affairs. Such districts have perpetual existence, are authorized to acquire water and water rights and real and personal property, to exercise the power of eminent domain and dominant eminent domain, to contract with the Government of the United States or any agency thereof for the construction, operation, and maintenance of all forms of irrigation works, to establish rates at which water may be sold, leased, or otherwise disposed of, to employ adequate personnel, and, in general, to perform each and everything one ordinarily associates with irrigation districts. One of the unique provisions of this type of district is the power to levy a general tax upon all property within the district, whether or not the particular property involved acquires any water from the project. The limit of such taxation is, however, a maximum of not to exceed 1½ mills as follows: prior to the date water is ready for delivery from the project works, not to exceed one-half mill, and thereafter not to exceed one mill on each dollar of assessed valuation of such property in the district except in the event of a default or deficiency, whereupon an additional levy not in excess of an additional one-half mill may be imposed on a total assessed valuation of $132 million (the estimated assessed valuation of all property within the boundaries of the district). A 1-mill levy would produce an estimated annual net revenue of $119,000 (1 mill minus 10 percent), which sum would be available to help repay that portion of the project assessed against irrigation features.

Any irrigation district located within the boundaries of the water-conservancy district of any individual owners of land may petition the board of directors of the district for an allotment of water. The board has the power to grant or refuse such petitions after a public hearing in connection therewith. If such petition is granted, there is no limit to the financial obligation of the land receiving water, but the principle of law known in irrigation legal circles as the "last fertile acre" is the limit of liability as pointed out in the project report. It is estimated that there will be a net headgate water supply available of approximately 56,700 acre-feet for which a charge of $3.60 per acre-foot can be levied. In addition, the Twin Lakes Reservoir & Canal Co., which presently has more water rights than it has space to impound the same on the Eastern Slope of Colorado, could purchase storage space from the project. It is anticipated that 12,500 acre-feet of such storage space would be available at a charge of $2 per acre-foot per annum. All of this is more particularly stated in the regional director's letter at page 18 of said Senate document. In addition, the board of directors of a water-conservancy district can receive petitions from the various municipalities desiring to purchase water. In these peititions each municipality agrees to make payments in accordance with the schedule affixed to that petition and approved by the board. If the petition is approved by the board of directors, the county officers of the county in which such cities are situated levy such taxes as may be required upon all lands within the boundaries of the city in order to meet the muncipal payments. On failure to pay any water assessment, real property can be sold at any regular tax sale in the same manner as provided by the statutes of Colorado for failure to pay general property taxes. Section 25 of chapter 266 of the Sessions Laws of 1937 also authorizes the sale of water by contract, lease, or otherwise by the conservancy district. Thus, the administration of the water supply would be in the hands of the district, and the provisions of the State statutes with reference to this subject are sufficiently flexible and complete to enable efficient administration of such supplementary water supply, either for irrigation or for municipal purposes.

Furthermore, the district has adequate powers to enter into any and all contracts that may be required for reregulation of winter water or to effect savings of evaporation from shallow plain reservoirs by the owners thereof storing their water upstream in reservoirs at greater altitudes where evaporation is decidedly less and where the project reservoirs offer a greatly reduced surface area to the effect of evaporation. In passing, it should be noted that no city with a population in excess of 25,000 according to the last census shall be included within the boundaries of the district unless by and with the written consent of the chief executive officer of such city or city and county and with the approval of the legislative body of said city. Such consent may specify that the rate of taxation on the

assessed valuation of property within such city shall not exceed a maximum rate, which may be less than the rates set out in the statute as applicable to property outside the boundaries of a city (the 1½-mill levy hereinbefore referred to). Section 32 of the Water Conservancy Act requires a contract with the United States to be submitted to qualified electors of the district, herein defined as electors who have paid a tax on property in the district in the year preceding such election, at the time and place of the election. Each such elector has the privilege of voting in favor of or opposing the proposed repayment contract. In the event that a majority of the qualified electors of the district have voted in favor of the proposition submitted, the district is authorized by law to enter into such a contract and to incur any obligations thereof. Finally, it is the usual procedure in cases of this type to bring a confirmation proceeding in a court of competent jurisdiction as provided in section 36 of the Water Conservancy District Act, to obtain a court decreee approving the creation of the district and the execution of the repayment contract with the United States.

Some minor amendments have been made since 1937 which enhance the flexibility of this type of district. In 1938, in the *People of the State of Colorado* v. *Lelford et al.* (102 Colorado 284, 79 Pacific Second 274), the Supreme Court of the State of Colorado upheld the constitutionality of the water conservancy district law in a proceeding brought to challenge it.

Some of the legal problems in connection with municipal water are deserving of special attention. Colorado Springs, Pueblo, and the valley towns of Manzanola, Rocky Ford, La Junta, Las Animas, Lamar, Crowley, Wiley, and Eads have all requested allocations of municipal water, and a total of 15,000 acre-feet of project water have tentatively been reserved for such annual demand. Colorado Springs, being on the Fountain River and having a source of water other than the Arkansas River, poses a problem peculiar to itself. The requirements of Colorado Springs would be solved by the exchange of water by means of pumping and special project works designed to serve only Colorado Springs. These costs are comprised of the cost of a pumping plant, pen stock, substation, power for pumping, construction costs of diversion dam on Oil Creek, canal and operation and maintenance expenses, as well as the purchase of Fryingpan-Arkansas water to be exchanged for waters taken by the city of Colorado Springs. All other cities have a common problem from Pueblo east and down the Arkansas Valley. For these cities a charge for project water would be made, and the pro rata cost of the pipeline, pumping, and treatment plant to serve such city or town would be added thereto. In accordance with the recommendations of the regional director, paragraph F, page 25, Senate Document 106, 82d Congress, second session, provides that no portion of such municipal water supply systems as are described in the report be constructed until or after satisfactory evidence is presented to the Secretary of the Interior that it is not feasible for the communities involved to construct or to finance the construction of such work themselves. Paragraphs G and H thereof require the repayment of the costs plus interest at 2 percent with 40 years, plus operation, maintenance, and replacement costs, and they further authorize the Secretary to establish rates at the lowest price consistent with sound business principles but in no case higher than the cost of an alternative single purpose supply of equal quantity and quality. While the costs indicated might appear to be prohibitive, the quality and quantity of water available to the cities of the Arkansas Valley is such that it is worth whatever the charge may be for these municipalities to procure additional water supplies.

In line with the recommendations herein referred to, the cities would be called upon to finance their own works, but if that is not possible, the Secretary of the Interior may construct such pipeline, pumping, and treatment plant as a part of the project; provided, however, that contracts are first entered into with the various municipalities involved to assure the United States the recovery of the costs thereof. Such contracts are to be several or joint and several, or it is possible that under Colorado law a district could be formed, comprising only the municipalities from Pueblo east purchasing water, and those municipalities could contract with the master water conservancy district for the repayment of the costs thereof. It is contemplated throughout that the water conservancy district to be organized will have administration and control over all of the waters, both domestic and irrigation, and there will not be two corporate entities engaged in the same field.

The foregoing comprises the principal legal aspects of the Fryingpan-Arkansas project. There are many other legal problems which will arise, but time prevents a discussion of them, and it is believed that ample precedents exist under the Federal reclamation laws and the laws of Colorado to cope with any and all such problems.

STATEMENT OF FRYINGPAN-ARKANSAS PROJECT SUBMITTED BY JOHN W. BEATY

I, John W. Beaty, of Manzanola, Colo., hereby urgently recommend the immediate authorization of the Fryingpan-Arkansas transmountain diversion.

For purposes of identification, I desire to say that I was born in Manzanola, Colo., in the Arkansas Valley, of pioneer parents, who took part in the building of the agricultural, stock raising, and irrigation business of the valley. My parents and relatives were farmers, livestock breeders and feeders, merchants, businessmen and bankers, who founded the town of Manzanola.

I have lived in Manzanola ever since the date of my birth, where I have agricultural, livestock, mercantile, and bank holdings, as of this date. I am now a member of the following organizations, among many others: The Colorado Water Conservation Board; the Arkansas Valley Ditch Association; and a director of the Manzanola School District. I am president and manager of the Catlin Canal Co. which operates the Catlin Canal, which irrigates approximately 18,770 acres of land in the Arkansas Valley.

Space only permits reference to a few reasons why the said transmountain diversion ought to be immediately authorized. Except for small ditches and the ditches of the upper Arkansas Valley, there are 23 ditches all below Portland, Colo., which irrigate approximately 306,000 acres of the total of 322,000 acres of land irrigated from and on the main stem of the Arkansas River.

Thirteen of these ditches have requested and do now urgently need a supplemental supply of approximately 175,500 acre-feet of water per annum, in addition to their present supply obtainable from the Arkansas River. The names of these companies and the respective amounts of supplemental supply which they would be willing to take from the Fryingpan-Arkansas diversion, if the terms and payments therefore shall be satisfactory, are:

	acre-feet
The Fort Lyon Canal Co.	75,000
The Fort Bent Ditch Co.	5,000
The Bessemer Irrigation Ditch Co.	10,000
The High Line Canal Co.	15,000
The Otero Irrigation District	15,000
The Catlin Canal Co.	3,000
The Rocky Ford Ditch Co.	1,000
The Amity Mutual Irrigation Co.	25,000
The Lamar Canal & Irrigation Co.	2,000
Koesee ditch	1,000
Colorado Fuel & Iron Co.	1,000
Excelsior Irrigation Co.	2,500
Holbrook Irrigation District	20,000
Total	175,500

The proceeds from the annual sales of crops produced from Leadville along the main stem of the Arkansas River amount to about $16 million. The proceeds from the annual sales of livestock in the same area amount to about $11 million, or a total of $27 million for both crops and livestock.

The annual crops losses estimated to be suffered due to water shortage in the above area amount to about $5 million. The annual livestock production loss in said area amounts to about $2 million, or a total loss of livestock and crops of about $7 million.

I am sure that 50 percentum of the amount of the foregoing losses would be eliminated by additional, or supplemental, water which will be made available under the Fryingpan-Arkansas River project.

Another very important handicap resulting in financial loss, as well as tremendous loss in the general health and living standards of the residents of the agricultural area of said valley, occurs because of the shortage, and in some instances entire lack, of wholesome domestic water supply. Most of the residents in the agricultural area now have to haul their water in tank wagon lots to cisterns located at their homes. The water is then taken from the cisterns for all domestic and household uses.

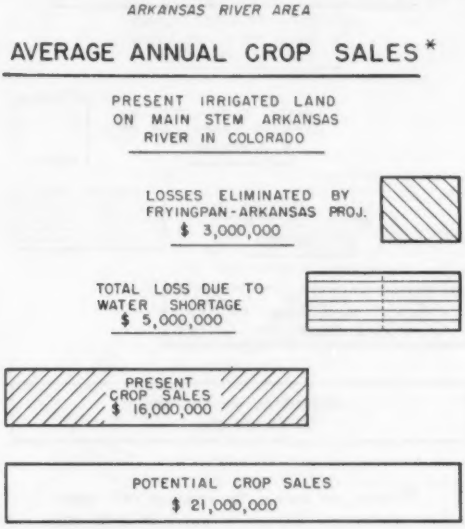
This often results in contamination and disease which is very expensive, not to mention the suffering and sometimes death caused thereby.

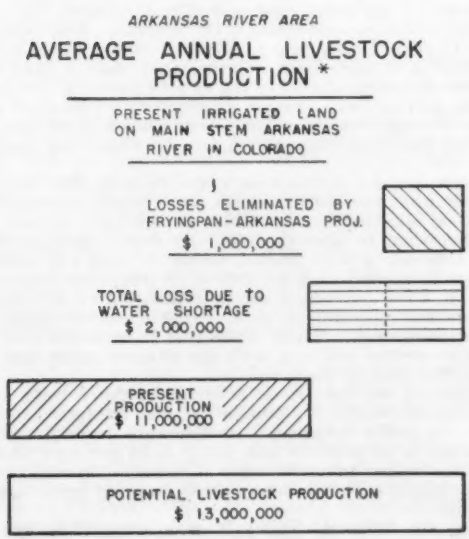
In addition, in much of the area, livestock is watered with muddy and unwholesome surface water and from surface wells which are highly mineralized. This greatly increases the loss and reduces the productivity of the livestock industry of the area.

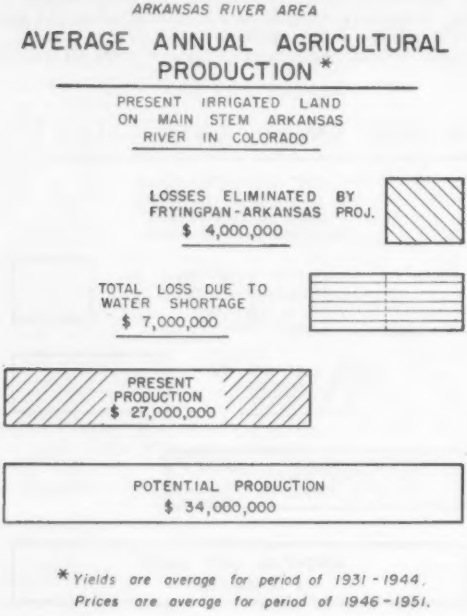
Countless other reasons could be entered for the authorization of this sorely needed diversion. Many of them will be presented by other persons, but the

fact remains that one of the richest and one of the most livable localities in this or any other nation is severely crippled and handicapped at the present time with a lack of ample, wholesome, and controlled water.

This project should be authorized and completed with all convenient speed


ARKANSAS RIVER AREA
AVERAGE ANNUAL CROP SALES *
PRESENT IRRIGATED LAND ON MAIN STEM ARKANSAS RIVER IN COLORADO
LOSSES ELIMINATED BY FRYINGPAN-ARKANSAS PROJ. $ 3,000,000
TOTAL LOSS DUE TO WATER SHORTAGE $ 5,000,000
PRESENT CROP SALES $ 16,000,000
POTENTIAL CROP SALES $ 21,000,000
* Yields are average for period of 1931-1944.
Prices are average for period of 1946-1951


ARKANSAS RIVER AREA
AVERAGE ANNUAL LIVESTOCK PRODUCTION *
PRESENT IRRIGATED LAND ON MAIN STEM ARKANSAS RIVER IN COLORADO
LOSSES ELIMINATED BY FRYINGPAN-ARKANSAS PROJ. $ 1,000,000
TOTAL LOSS DUE TO WATER SHORTAGE $ 2,000,000
PRESENT PRODUCTION $ 11,000,000
POTENTIAL LIVESTOCK PRODUCTION $ 13,000,000
* Yields are average for period of 1931-1944.
Prices are average for period of 1946-1951


ARKANSAS RIVER AREA
AVERAGE ANNUAL AGRICULTURAL PRODUCTION *
PRESENT IRRIGATED LAND ON MAIN STEM ARKANSAS RIVER IN COLORADO
LOSSES ELIMINATED BY FRYINGPAN-ARKANSAS PROJ.
$ 4,000,000
TOTAL LOSS DUE TO WATER SHORTAGE
$ 7,000,000
PRESENT PRODUCTION
$ 27,000,000
POTENTIAL PRODUCTION
$ 34,000,000
* Yields are average for period of 1931-1944.
Prices are average for period of 1946-1951.

STATEMENT IN SUPPORT OF THE FRYINGPAN-ARKANSAS PROJECT BY HARRY BARNES

My name is Harry Barnes. I have been a resident of the Arkansas Valley for 30 years. For the past 15 years I have held the position of city engineer for the city of Rocky Ford. I am State chairman of the Colorado Municipal Highway Committee. I have held various offices in the American Waterworks Association. During the past 15 years I have been in complete charge of the municipal waterworks for the city of Rocky Ford. During that time I have rendered some engineering service to practically all of the smaller towns of the Arkansas Valley and through this service have become familiar with about all of their water problems. Also, through association with other municipal officials, I have learned to understand the problems encountered by the cities that employ their own engineers.

When towns were founded in this area, water, from the first day, was the major problem. Shallow wells, for the most part, were found to produce a water that was so hard and so alkaline in nature that it could not be used satisfactorily. Municipalities then went to artesian wells. At depths ranging from 750 feet to 1,200 feet they obtained a very limited supply of very soft water. Even then many of these wells carried such an extent of iron that some treatment was necessary. Within a few years most communities outgrew the supply these wells furnished. It was then necessary to go in search of surface supplies or to use the extremely hard shallow wells. Those towns that have stayed with the deep wells have been forced to restrict building, with the ultimate result that many of them are smaller than they were 20 years ago.

Actually, gentlemen, we have some residents of every town and city in the valley, as well as all of the country population, who are forced to haul all of their domestic water. In many instances it is necessary to haul this water several miles. The average price paid for this water is $5 per each thousand gallons. Many homes in the valley have no means of sewage disposal, caused by a lack of water to flush toilets. This in many areas does not point toward a modern sanitary condition.

The climate of the Arkansas Valley is of a semiarid nature. The annual rainfall is from 11 to 16 inches. This is too little to let most plants exist. Irrigation is necessary for us to have lawns in our towns and cities. And I believe

that you will agree that lawns and gardens are necessary for modern living. The fact that irrigation is necessary makes our daily per capita use of water run from 200 to 450 gallons.

Another bad feature of the water situation in all of the valley municipalities is the fact that no storage exists. No town or city east of the proposed Pueblo Reservoir has any storage. By that I mean, when the pumps stop there is nothing to fall back on. Take our small community, whose only supply is a 1,200-foot well. Suppose a shortage of power or a well-casing failure should stop production of that one well. A city without water could very easily become a city where disease could run rampant. The large city tries never to have less than a 6-month supply in storage. Please compare that with the situation that exists in our valley.

Below we are going to present very briefly to you the names of the towns and cities which would be affected by the Fryingpan-Arkansas project. In this, I am going to show the present source of domestic water, the population served, and the hardness of the present supply. Please observe that each community would be affected in a different way, but every community would be benefited.

Salida, Canon City, and Florence, all being located at high altitudes along the Arkansas River, all derive a very nice water from that river. The diversion plan would benefit these cities in that with a higher river they would have a more ample supply at all times of the year. The total population of these 3 towns is approximately 15,000.

Fowler is presently supplied from natural springs. Hardness is 10 grains per gallon. Population is 1,025. This town has made no application for additional water. Most of their citizens know that any increase in population would necessitate more water. The springs are running at full capacity at the present time.

Manzanola obtains its water from a depth of 1,200 feet. The water is reasonably soft but contains sulfates in such an extent that it is eating up the distribution system. They have barely enough water to supply present needs. Residential building has been curtailed for many years. A major failure in a well casing would put the town out of water for months.

Rocky Ford serves a population of around 5,000 people, obtains its present supply from the Arkansas River, has a filtration plant, and because of the highly polluted raw water it is forced to a very expensive treatment procedure. Hardness averages about 30 grains per gallon. When the river is low, they are forced to pump their entire supply three times.

La Junta serves a population of about 8,000. Present supply is obtained from the bed of the Arkansas River. Hardness is around 57 grains per gallon—too hard for the commercial water softener to handle. The city has been greatly handicapped by the hardness of the water.

Las Animas serves a population of around 4,000 persons. Water is taken from shallow wells. Hardness is 78.5 grains per gallon. Imagine, gentlemen, trying to live with a water supply that hard.

Lamar serves a population of 8,000 persons. Present supply is a combination of wells and surface water from Clay Creek. Hardness is around 21 grains per gallon. As long as the surface does not lower, the city feels that it will continue to have an ample supply of only fair water.

Swink serves about 400 people. Obtains water from a well 735 feet deep. Supply is very limited. Residential building is prohibited. With better and more water, the town would grow. A large sugar factory located here is forced to supply its own water, for both its residences and for its operation.

Eads serves a population of about 1,200; gets a very limited supply of water from two deep wells. Supply is used for domestic water only. The watering of lawns is usually prohibited. Growth is limited because of the shortage of water. Another instance where a major breakdown could put the town out of water for months.

Wiley serves about 450 persons. Water is obtained from the Arkansas River. They have about a 800,000-gallon reservoir and a small high-pressure filtration plant. When the river is low for a long period of time and the ditch from which they receive their supply is out of water, the town is out.

Crowley is a small community of about 300 persons. Water supply is from shallow wells. Supply is very limited and water is extremely hard. This community has not had a chance to expand over the years because of their being unable to furnish an adequate supply of water to the inhabitants now there, let alone any new population.

Ordway serves a population of about 1,200 persons. Water is derived from better than average wells. The town has a reservoir which holds about 20 days'

supply. The town also has a softening plant; at present is doing very well. If the ground-water supply holds up, they, with no increase in population, are in a fair shape for domestic water.

Thus, gentlemen, we have shown you a brief résumé of 14 communities who serve some 44,000 persons. These communities have, in the past years, spent literally millions of dollars, acting upon the best engineering ability available, to do the best that could be done in the way of providing as much water and as good a water as could be had. Only in very rare instances can it be said that these millions have been spent wisely, because we are still short of an adequate supply of soft healthful water. We in the Arkansas Valley are fully aware of the fact that our towns and cities never become any larger than their water supplies. We also feel that a price cannot be placed on the most precious commodity the world possesses; namely, an adequate supply of soft pure water.

Mr. ASPINALL. Mr. Chairman, returning to your statement on page 4, where you set out comparative land areas and other resources of the two slopes, do you know whether the 5.4 arable land which is shown to be the Western Slope could all be put under irrigation economically? And, if so, would that use all of the Western Slope's water resources for irrigation.

Mr. DUCY. Of course, it is my opinion it would not, sir, on the basis of studies that have been made. As you well know, I am not an engineer or an agriculturalist.

These figures, incidentally, were taken from the Patterson report, which is a matter of record in the Colorado Water Conservation Board records.

Mr. ASPINALL. I understand that, and I am not questioning the authenticity, but I am questioning the picture which you leave with the committee that the water should be divided in accordance with comparative percentages which you show.

Mr. DUCY. No, sir; we do not believe that.

Mr. ASPINALL. That is what we want to clear up.

Mr. DUCY. No, sir; we do not believe that.

Mr. HARRISON. Is that all, Mr. Chenoweth?

Mr. CHENOWETH. That is all at this time, Mr. Chairman. We may want to present some further witnesses when the opponents have concluded.

Mr. HARRISON. Do you have the list of opponents, Mr. Aspinall? Are they the same as the names on the list before me?

Mr. ASPINALL. Mr. Chairman, I think that the witnesses who are appearing here in opposition should be permitted to state the order in which they wish to appear. I understand that many of the questions that they had in mind have been answered, and that maybe it will not take as much time as they have asked for.

As I understand it, Mr. Glidden, you wish to appear first?

Mr. GLIDDEN. Yes.

Mr. ASPINALL. Mr. Glidden is the chairman of the group. Mr. Glidden is from Aspen. If you will make your appearance, Mr. Glidden, and then the other witnesses as you desire.

STATEMENT OF FRED GLIDDEN, ASPEN, COLO.

Mr. GLIDDEN. Mr. Chairman, for purposes of identification, my name is Fred Glidden, and my residence is Aspen, Colo. This town is located in Pitkin County, from which 90 percent of the water to be diverted for the project under consideration originates.

I represent the county commissioners of Pitkin, Garfield, and Rio Blanca Counties, the city of Aspen, the Chamber of Commerce of the

City of Aspen, and the Pitkin County Water Protection Association. These organizations are all opposed to the authorization of the Fryingpan-Arkansas transmountain diversion project in its present form.

I am a magazine writer by profession. I am not a qualified water expert or engineer. Accordingly, I ask permission of the chairman for Mr. John Barnard, a qualified water expert and resident of the western slope of Colorado, for permission to present our opposition to House Resolution 236.

Mr. HARRISON. Does that complete your statement, Mr. Glidden?

Mr. GLIDDEN. Yes, sir.

Mr. HARRISON. Thank you. Any questions of any members of the committee?

Chairman MILLER. I want someone to tell me how many people are represented in the organizations that you have mentioned.

Mr. GLIDDEN. The Pitkin County Water Protection Association?

Chairman MILLER. Yes.

Mr. GILLDEN. About 200.

Chairman MILLER. How many in the other organizations?

Mr. GLIDDEN. There are three county commissioners for the three counties I mentioned—nine.

Chairman MILLER. How many people in the counties?

Mr. GLIDDEN. Pitkin County has approximately 1,500 people, Garfield County approximately 6,000; Rio Blanca, I would say the same.

Chairman MILLER. What percentage of the overall population in the area affected would that represent—3 percent, 15 percent? What would be the percentage?

Mr. GLIDDEN. I do not know, sir.

Chairman MILLER. How many people then in the entire area involved?

Mr. ASPINALL. If my colleague will yield, what do you mean by "area"?

Chairman MILLER. The area to be affected by the Fryingpan-Arkansas project. I am wondering how many people the objectors are representing in the overall picture.

Mr. ASPINALL. If you mean the immediate area on the western slope, Mr. Glidden has already given that figure, 1,500, all in Pitkin County. And he has stated that the opposition is practically unanimous as far as that group is concerned. Now if you carry on down through the rest of the basin and western Colorado, of course, that is a larger figure.

Chairman MILLER. Thank you.

Mr. RHODES. Mr. Chairman, the witness stated these organizations are opposed to the project in its present form. Would you explain a little bit on that?

Mr. GLIDDEN. May I allow Mr. Barnard to do that?

Mr. RHODES. It is all right with me. You made the statement. I just wanted to know what you meant by it. If you want the other witness to do it, it is perfectly all right.

Mr. GLIDDEN. Thank you.

Mr. HARRISON. Any questions, Mr. D'Ewart?

Mr. D'EWART. No.

Mr. HARRISON. Mr. Saylor?

Mr. SAYLOR. Is the basis of the opposition to this project, Mr. Glidden, the mere fact that your water is being taken, or what is in back of it? Why does this leave your district short of water?

Mr. GLIDDEN. Mr. Saylor, this project, combined with the proposed diversion project and the past diversion project, would, we believe, leave the Western Slope short of water.

Mr. SAYLOR. In other words, as I gather, the reason for your opposition then to the project is that the benefits or the water that would be taken from your area to benefit the Fryingpan-Arkansas district is based upon the fact that that diversion, if made, would leave your county and the Western Slope short of water under the Colorado River Compact?

Mr. GLIDDEN. I believe this diversion, which is a part of a far larger diversion, would leave our slope short of water.

Mr. SAYLOR. You say "part of a far larger diversion." What do you mean by that?

Mr. GLIDDEN. I believe the Fryingpan-Arkansas project is the initial stage of the Gunnison-Arkansas project.

Mr. ASPINALL. Would my colleague yield there?

Mr. SAYLOR. Yes.

Mr. ASPINALL. For an observation and question. And the reason that you believe that is that the Bureau of Reclamation in its first survey came out with the Gunnison-Arkansas project; is that not right?

Mr. GLIDDEN. That is correct.

Mr. ASPINALL. And then, because of several reasons, they have now asked for the authorization of the Fryingpan-Arkansas not as a part of that overall project but as an initial part of what they formerly proposed; is that correct?

Mr. GLIDDEN. That is correct.

Mr. SAYLOR. In other words, what I am trying to do is figure out why this opposition, apparently unanimous in your county because of the diversion of just apparently a small amount of water. In other words, it is your feeling, as Mr. Aspinall says, that this Fryingpan-Arkansas is actually just a snare and a delusion, that they actually intend to go through with the Gunnison-Arkansas project which was specified in a large book put out by the Bureau of Reclamation?

Mr. GLIDDEN. That is correct. We believe that this is the foot in the door.

Mr. ENGLE. If you did not know that, or did not think it, would you still be against the project? In other words, just assuming for the sake of argument that this is an integral project in itself and this is all it would mean, would you still oppose, the people you represent still oppose the project?

Mr. GLIDDEN. I do not believe they would, sir.

Mr. ENGLE. I will ask the gentleman from Colorado, Is it the camel's nose under the tent?

Mr. ASPINALL. I do not speak for the Bureau of Reclamation.

Mr. SAYLOR. Neither past nor present?

Mr. ASPINALL. Neither past nor present. I am very sympathetic toward their ambitions, as far as that is concerned, and the ambitions of those benefited thereby. I do know this: that the people of Aspen and vicinity have a right to be fearful, because the Twin Lakes diversion, which has already been referred to in these hearings, has dried

up many of their fishing streams. And those of you who have visited Aspen know what that means to that particular area.

By the way, I do not believe you have visited Aspen yet, Mr. Saylor.

Mr. SAYLOR. No.

Mr. ASPINALL. I think that this committee should have the benefit of a personal visit to the area concerned before final disposition of the project.

With that in mind, and keeping in mind that there is to be a large reservoir built just 2 miles above the town at a good bit of elevation above the town, and with the thought that there has been a more ambitious program in mind, they have a right to be questioning (as far as this present project is concerned) to see that their area is protected.

I question very much Mr. Glidden's last statement, that there would not be any opposition if they were assured, because I think there would be opposition. And members of this committee know that we always have opposition from areas which are to be flooded out and which are to be changed for the benefit of other people. So there more than likely would be some continuing opposition, Mr. Glidden, from the Aspen area, even though they had an insurance policy that all of these protective measures were going to be made.

Mr. SAYLOR. Mr. Glidden, I might ask one other question. The chairman of this committee, Mr. Poulson, received under date of May 27 a telegram from Mr. T. J. Sardie, chairman of Pitkin County Association, and James H. Smith, director of the Colorado River conservation district, which I referred to yesterday and asked one of the opponents with regard to this telegram.

Now this telegram I think raises a number of questions, and I would like to have you, if you can—first, I will ask you if you are familiar with this telegram.

Mr. GLIDDEN. Yes, I am.

Mr. SAYLOR. You know that the telegram asks certain questions?

Mr. GLIDDEN. I do.

Mr. SAYLOR. The first one is, they ask that we postpone the final decision on this hearing until first an engineering report on the water presently available, presently committed, and needed in the reasonable future in the upper Colorado River Basin. The only study on this has been undertaken by the State for completion in November 1953.

Mr. GLIDDEN. That is correct.

Mr. SAYLOR. What study is that?

Mr. GLIDDEN. That is the study of the Colorado conference survey. That is a committee appointed by the Colorado State Water Board, and they will produce, we hope, the only comprehensive study that has ever been made of the upper Colorado River Basin.

Mr. SAYLOR. Who authorized this committee to make its study?

Mr. GLIDDEN. The State of Colorado. The legislature appropriated $100,000 for that purpose.

Mr. ASPINALL. May I make an observation here?

Mr. SAYLOR. Yes.

Mr. ASPINALL. Do you know whether or not that study is under way at the present time?

Mr. GLIDDEN. I believe it is.

Mr. ASPINALL. And how many different agencies or groups have been hired to make the study? Do you know?

Mr. GLIDDEN. The University of Colorado has received some funds for the completion of the industrial survey, and a California engineering firm has been employed for the survey of the water.

Mr. ASPINALL. Do you know the name of that firm?

Mr. GLIDDEN. I am sorry, sir, I do not.

Mr. ASPINALL. Is Mr. Hill one of the men secured? I think, for the benefit of the record, we should have that. Who can give the answer?

Mr. CRAWFORD. The engineering firm is the firm of Leeds, Hill & Jewitt, of Los Angeles.

Mr. HARRISON. Who is the gentleman speaking?

Mr. CRAWFORD. My name is Ivan C. Crawford, and I am director of the Colorado Water Conservation Board.

Mr. SAYLOR. Now they say in the second question that we should wait for a study of the industrial potential of the upper Colorado River Basin.

The only study on this has been taken by the State for completion October 1, 1953.

Now, what is that study?

Mr. GLIDDEN. That is the University of Colorado study.

Mr. SAYLOR. And is that being done under the direction of the State or anybody in the State, or is it just investigation being conducted by the university itself?

Mr. GLIDDEN. No, sir; that is being paid for by the $100,000 appropriation of the Colorado Legislature and is parallel to the water survey.

Mr. SAYLOR. In the third question they said we should wait for the study by the Fish and Wildlife Service, which was undertaken by that bureau 3 years ago and scheduled for completion June 30, 1953. What is that survey?

Mr. GLIDDEN. That is a survey of the Fryingpan-Arkansas diversion project as it affects fish and wildlife. Their preliminary survey is contained in the Gunnison-Arkansas report, but their final survey has not yet been completed.

Mr. SAYLOR. Is that survey being conducted by the Fish and Wildlife Service of the Department of the Interior?

Mr. GLIDDEN. That is correct.

Mr. SAYLOR. In the fourth they say we should await a land classification study undertaken by the Bureau of Reclamation and scheduled for completion this fiscal year.

Mr. GLIDDEN. That is correct.

Mr. ASPINALL. Mr. Saylor, may I interject there, that study is known as the Cliff Divide study of the Bureau of Reclamation on the main stem of the Colorado.

Mr. SAYLOR. Next they say we should wait for a reconnaissance survey undertaken by region 4 of the Bureau of Reclamation for completion July 1, 1953. What is that?

Mr. GLIDDEN. I believe that is undertaken by region 4, and is related to the land classification survey.

Mr. SAYLOR. Does it cover just the Fryingpan-Arkansas project, or does it cover all of Colorado?

Mr. GLIDDEN. All of Colorado, upper Colorado drainage.

Mr. SAYLOR. The next thing it says we should wait to have is a breakdown of the projects into two parts; that is the reregulation

of Arkansas Valley water and the transmountain diversion of Colorado River water.

Now, why do you feel that we should have this broken into two parts?

Mr. GLIDDEN. We feel that it should be broken into two parts because there is 97,000 acre-feet of unused water in the Arkansas River.

Mr. SAYLOR. Where do you get those figures from?

Mr. GLIDDEN. The Bureau of Reclamation report.

Mr. SAYLOR. Which report?

Mr. GLIDDEN. The Gunnison-Arkansas report, and also Senate Document 106, I believe.

Mr. SAYLOR. All right, continue. Is that the only reason?

Mr. GLIDDEN. We believe that if the costs of the transmountain aspects are broken down, they will not prove feasible.

Mr. SAYLOR. First, you realize, Mr. Glidden, it is possible to show that a portion of this project or a feature of the project is not on its own, standing on its own feet, might not be feasible.

Mr. GLIDDEN. That is right.

Mr. SAYLOR. But when looked at as an overall project, then the benefits that are derived for the entire Fryingpan-Arkansas area, then you must lose sight of the fact that one unit might not be feasible in its own self.

Mr. GLIDDEN. The Bureau has said that this is feasible only if it is a multiple-purpose project. We would like to have them prove that.

Mr. SAYLOR. Next they say:

> There is no annual flow data on the Roaring Fork, Fryingpan, and Hunter Creek. All these are supposedly the source of supply water for the diversion.

Mr. GLIDDEN. That is correct.

Mr. SAYLOR. You heard yesterday one of the men say, when I asked him that question, that the report shows that they have all the data necessary to determine the annual flow in these streams.

Mr. GLIDDEN. They have educated guesses, Mr. Saylor, or they have not detailed figures.

Mr. SAYLOR. Why do you say it is only an educated guess?

Mr. GLIDDEN. Last Friday we talked to our division engineer at Glenwood Springs, and asked him for that data. We asked him for a detailed list of the adjudicated water above that confluence of the Roaring Fork and the Fryingpan. He supplied many figures which we believe have not been included in the other figures.

Mr. SAYLOR. Now, the next item, you say you want the report from the Bureau of the Budget. Of course we now have the report from the Bureau of the Budget.

Mr. GLIDDEN. Yes.

Mr. SAYLOR. Then you say in the last question you want the figures developed by the Department of Justice in the Colorado River appropriation, which have not yet been published. What figures are those?

Mr. GLIDDEN. That is the Blue River project. That we asked for because the Blue River is part of the Colorado, and any diversion from the Blue River affects the Colorado just as the diversion from the Fryingpan affects the Colorado.

Mr. SAYLOR. Am I correct in my recollection that the witness testified with regard to this yesterday that this question was involved in a lawsuit at the present time?

Mr. GLIDDEN. That is correct.

Mr. SAYLOR. And it has to do with something with regard to the release of water?

Mr. GLIDDEN. That is correct.

Mr. SAYLOR. Out of which project?

Mr. GLIDDEN. Beg pardon?

Mr. SAYLOR. What is the project in which the lawsuit is involved at the present time?

Mr. GLIDDEN. Blue River project.

Mr. ASPINALL. The Green Mountain Reservoir.

Mr. SAYLOR. The Green Mountain Reservoir?

Mr. GLIDDEN, Yes.

Mr. SAYLOR. And in what court is that pending?

Mr. GLIDDEN. I believe it is the district court.

Mr. SAYLOR. Federal District Court of Colorado?

Mr. GLIDDEN. Yes.

Mr. ASPINALL. Two of them. One in the Federal district court and one in the State district court.

Mr. SAYLOR. That is all.

Mr. HARRISON. If there are no further questions, Mr. Barnard is the next witness.

STATEMENT OF JOHN B. BARNARD, GRANBY, COLO.

Mr. BARNARD. Mr. Chairman and members of the committee, I want first to identify myself and to give you some of my background.

I am a lawyer practicing in Granby, which is in Grand County, Colo.

I was born in Colorado and my entire life has been spent there with the exception of a year or two when Uncle Sam sent me on a vacation trip to France in 1917 and 1918.

In addition to practicing law, I am the owner and operator of a cattle ranch in Grand County, which is irrigated by means of decreed rights out of the Fraser River, which is a tributary of the Colorado River.

I might add that I live in the shadow of the Granby Dam, which is the essential unit of the Colorado-Big Thompson project, and I propose comment on that project somewhat extensively in my testimony.

In addition—by the way, the acquisition of that ranch is not a recent thing. I have owned it for 32 years. I have observed the Colorado River before and after the construction of the Colorado-Big Thompson project.

I practiced law in the city of Pueblo, Colo., for 26 years, following the year 1920. For the last 22 years of that period I devoted the greater part of my time to the practice of law relating to irrigation.

In view of that fact, the proponents of this project need spend no time, as I have no difficulty in recognizing and realizing the desirability of additional irrigation and municipal water in the Arkansas Valley.

I am now attorney for the Middle Park Water Conservancy District, which includes Grand and Summit Counties in Colorado. These counties are located on the headwaters of the Colorado and the Blue Rivers, respectively.

I want to elaborate a little on that.

The Middle Park Water Conservancy District, which comprises those two counties from which water is being taken in every direction by every conceivable means, was organized and exists primarily for the purpose of protecting our people and western Colorado, playing our part in protecting western Colorado against unjustified and unwarranted transmountain diversions of water from the upper Colorado River basin.

In addition to that, I am attorney for the landowners and the water users in these two counties who, of necessity, have appeared in an action in the United States District Court for the District of Colorado. For further identification, that action is entitled "*United States of America* v. *The Northern Colorado Water Conservancy District and others*," and is Civil Action No. 2782.

That action is the one which was referred to by Mr. Breitenstein. It was by the United States to obtain a decree to its storage and other rights in the Colorado-Big Thompson project. Its secondary, and to us most important, purpose, is to define and point out and prescribe and construe the responsibilities of the United States under Senate Document No. 80 of the 75th Congress, which is a similar document to that which is involved in this project, namely, Senate Document 106.

Now, the committee asks, properly, whom do I represent, and for whom do I speak.

First, I do not claim or presume to speak for the entire western slope of the Colorado.

Second, I can and do speak officially on behalf of the Middle Park Water Conservancy District, which I have described, and the landowners and water users in Grand and Summit Counties, from which a large part of this transmountain water is being diverted.

The Middle Park Conservancy District includes a population of, roughly, I would say, from 7 to 9 thousand people. It is at a high elevation. We must, since we do not have storage reservoirs in that area, put the water to use as it comes down the streams, and we cannot store it and conserve it for future use. Therefore, any further diversions of water from the Colorado River watershed are going to vitally affect our area even though our counties are located a number of airline-miles, and much more road-miles, from Pitkin County and Garfield County. And I shall point that out a little later more fully.

I represent and speak for the Boards of County Commissioners of Pitkin, Garfield, and Rio Blanco Counties.

Now, to identify those counties and their relationship to this project.

Pitkin County is at the headwaters of the Fryingpan and Roaring Fork Rivers, also tributaries of the Colorado. Garfield County is immediately below its headwaters, and Rio Blanco County is located in the lower reaches of the Colorado River above the city of Grand Junction. In other words, some of these people whom I officially represent are located at the headwaters, some in the middle, and some on the lower river. And the water problems of those different areas are different, I think, as Congressman Aspinall can tell you.

Fourth. What I say here is supported, in effect, by a resolution adopted by the Western Slope County Commissioners' Association, including 22 counties, at a meeting of that association held in Glenwood Springs, Colo., which is in Garfield County, on June 6, 1953. And I should like to have permission of the committee to read that

resolution, or a telegraphic copy which we received of that meeting held last Saturday.

Mr. HARRISON. Without objection.

Whereas the State Legislature of this State has appropriated the sum of $100,000 for the purpose of causing a survey to be made of the feasibility and benefits of making further diversions of the waters of the western slope to the eastern slope of the State; and

Whereas this report is as yet uncompleted; and

Whereas it is understood that the Congress of the United States and other agencies of the Federal Government are about to appropriate funds for the diversion of waters of the western slope, and particularly those of the Fryingpan—and let me interrupt to interpolate that those men out there in the mountains of Colorado are not familiar with congressional procedures, and the processes by which a project passes from the talking stage to the building stage They misapprehended the thing, and assumed this hearing was for the purpose of appropriating funds, apparently, whereas, in fact, it is a matter of whether or not the project is to be approved by the Congress. Now, therefore, be it

Resolved, That this association go on record as unalterably opposing any appropriation of funds by the Congress of the United States and the expenditure of public funds by Federal agencies looking toward any further diversion of the waters of the western slope of Colorado until and unless such diversion has been demonstrated as feasible, beneficial, and practical as a result of the complete report for which such sum of $100,000 was appropriated, and until the results of the survey to be disclosed in such report are made generally known to the general public and to the members of this association. And be it further

Resolved, That a copy of this resolution be transmitted to the Member of Congress of the United States representing this District of Colorado and to the Senators of this State, and that said Congressmen and Senators be advised of the sense of opinion as evidenced by this resolution by telegram forthwith.

So that while officially I represent the interests I have named, I think it is clear from this telegram that I probably speak in behalf of this resolution.

Third. I want to outline specifically our objections, the positions we take, and our contentions in connection with this proposed project. And that in few words is this:

We are unalterably opposed to this or any other transmountain diversion of the waters of the upper Colorado River until these things are accomplished:

First. A complete survey of the water supply in the Colorado River Basin is made, and a dependable inventory of water resources therein is compiled and promulgated by an unprejudiced agency. The word "unprejudiced" is included because, speaking personally and for myself, I do not consider the Bureau of Reclamation an unprejudiced agency.

Second. A complete survey and analysis also by an unbiased and unprejudiced agency is made showing in detail the present and all future requirements for water on the western slope for all beneficial purposes, including agricultural, industrial, municipal, and domestic.

Third. Upon definitely ascertaining the amount of water, if any, shown by these reports to be available for exportation from the western slope, any transmountain diversion project, including that here under discussion is proved to be feasible, practicable, and economically sound.

Next I want to refer to the various approvals of this project as given by various agencies.

It has been stated that the project presently before this committee has had the approval of the Colorado Water Conservation Board. We challenge the accuracy of this statement. The approval that was

given was given a project which the one now before the committee is apparently an outgrowth, and that approval was given in the spring of 1951 and not since that time.

Second. It has been stated that this project had the unanimous approval of the Board of Directors of the Colorado River Water Conservation District, which comprises eight counties on the western slope.

Let me say here that Grand County is not included in the Colorado River Water Conservation District. It is to an extent a lone wolf, fighting its own battles, and attempting to kill its own snakes. We challenge that statement.

The project, as it existed at or prior to the time of the approval thereof by the Colorado River Conservation Board was the one which was approved by the directors of this district. This is not the project now before this committee.

Third. Since the approval of the original Fryingpan-Arkansas project by the Colorado Water Conservation Board and by the directors of the Colorado River Water Conservation District, there have been changes in the project itself or in the circumstances surrounding its approval, which are so fundamental and essential that we now state that the project now before this committee has never been approved by either or these boards.

First. The estimated cost of the project has been increased from $148 million to $172 million in round figures. And later in my discussion I propose to refer to some extent and at some length to the chronic increase in costs of the construction over estimates of cost by the Bureau of Reclamation.

This increase in cost estimate reflects a substantial change in plan, and the full extent of those changes we do not yet know as the information has been denied us.

I might say this, gentlemen: I know the members of the Colorado River Water Conservation District Board, and I have met with them, and that within 60 days. I am convinced, although I cannot speak for them, that were the situation as it now exists presented to the district board, it would be rejected with practical unanimity.

Fourth, and of extreme importance: At the time of the approval of the project by the Colorado Water Conservation Board and the directors of the Colorado River Water Conservation District, there was not in existence or in immediate contemplation any survey of the water resources or water requirement on the western slope upon which anyone could base a flat statement that so much water was actually available for transmountain diversion.

It is perhaps a sad commentary on the State of Colorado, but nevertheless it is true, that we have no inventory of our most valuable asset in that State. We do not know what our water resources amount to. Fortunately, our last legislature has seen fit to take the first step in correcting that deplorable situation, which should have been done years and years ago.

Now, that situation, lack of inventory, has been changed. Recognizing that such a survey and report based thereon is an essential condition precedent to any transmountain diversion, including this one, 1953 General Assembly of the State of Colorado appropriated $100,000 and fixed a time limit of 6 months for the making of that

survey and the submission of a report thereon. That report will not be available until late autumn of this year.

It has been stated to you at this hearing that that survey was prompted or brought about by the city and county of Denver in connection with its Blue River diversion project. We challenge that statement.

As the legislative records will disclose, not my statement nor that of any other witness, the bill which was finally adopted was offered and sponsored by Mr. Meeker of Montrose, Colo., a western slope city, and joined in by Mr. McLaughlin of Eagle County, a western slope county. And Mr. McLaughlin is here present and available and willing to be questioned by this committee. I think perhaps his comments would be enlightening.

We submit, gentlemen, that a request by the proponents of this project that it be approved by the Congress of the United States upon favorable action by this committee is entirely premature in advance of the completion of that report.

Next, it should be clearly understood that we object only to the transmountain diversion phase of the proposed Fryingpan-Arkansas project. Insofar as the reregulation of the Arkansas River is concerned by means of dams, conduits, or any other facilities, we express no opinion and are not concerned. If this committee feels that the investment of Federal funds for the purpose of improving and further exploiting the Arkansas River is economically justified, we will have no quarrel with the committee's decision.

Let me add that I know of my own personal knowledge, extending over 26 years of practice of law in Pueblo, that great benefits can accrue as a result of the reregulation of the Arkansas River, and that additional water will be made available to Pueblo and other Arkansas Valley cities for domestic use by that means. We are not concerned with that.

Our objections go to the transmountain diversion feature of the Fryingpan-Arkansas project, and we wish it to be clearly understood that our further remarks are directed to that aspect of the question here under consideration.

There is not at hand sufficient dependable information as to the amount of water which can be called surplus and thus available for transmountain diversion from the headwaters of the Colorado River or any of its tributaries to justify favorable action by this committee.

Why do I say that?

The best proof of the correctness of this statement is the fact that the 1953 session of the General Assembly of Colorado made the appropriation of which I have spoken for the very purpose of providing that dependable information, and thereby admitted that it is not now in existence.

Second, I want to refer to Senate Document 106, paragraph 4, on page 4, and I quote from that document:

> The full potential uses of water in western Colorado have not been completely determined.

That is a quotation.

Third. I want to quote from a statement made by the President's Water Resources Policy Commission in 1950.

> Probably no large drainage basin the country is as poorly equipped with basic data as is that of the Colorado River. The lack of data has come to be widely recognized, and great effort has been made to fill gaps. However, much information is still lacking.

Now, this statement was made at a time when the project now before the committee was in the final stages of planning, before it was approved in the spring of 1951 by the Colorado Water Conservation Board.

That is the end of the quotation.

Fourth. Of the water available in the Colorado River, former President Hoover in 1945, during the process of construction, by the way, of the Colorado-Big Thompson project, made the remark that—

> As the years go by, the amount of water actually available in the Colorado River is reported to be less.

Now, in spite of, and disregarding, the lack of available information as to water resources and needs in the upper Colorado River Basin, the proponents of this project urge you to approve it on the basis of assumptions and assurances by the Bureau of Reclamation that there is sufficient water to justify construction of the transmountain diversion features.

Again, in Senate Document 106, paragraph 4, on page 4, it is said, following a statement that the full potential use has not been completely determined, which I have heretofore quoted—and this quotation immediately follows it:

> Only the amount of water assuredly beyond the requirements for development on the western slope is proposed for diversion at this time.

Now, in view of those two statements, first, that we do not know how much water there is, and what the needs are; second, that only the amount assuredly available is proposed for transmountain diversion, we submit to this committee that it is the height of unwisdom at this time to approve this project and I shall attempt to give you more fully our reasons for that statement.

Well, as has been stated and restated by the proponents and the witnesses supporting this project, this is a comparatively small diversion, we must consider it in connection with all of the transmountain diversions from the upper Colorado Basin in analyzing its importance; whatever the amount of water proposed to be diverted. In other words, we apply the rule that it is the last straw that breaks the camel's back.

We take issue with the statement made by Mr. Breitenstein to the effect that consideration should be given this project separately and apart from any consideration of transmountain diversions from the Blue River, the main stem of the Colorado River, or from other tributaries of that stream. We are talking about one stream, regardless of the names of its tributaries.

If proper consideration is to be given by this committee to the effect of this project upon the economy of the western slope of Colorado, it must be considered as a part of the general plan whereby by means of various transmountain diversion facilities, waters of the Colorado River are transmitted to the eastern slope.

Further, in giving careful consideration to such diversions as are accomplished, this committee and the proponents of this project can well profit from the mistakes which have been made in connection with existing diversions and the effects of those mistakes upon both the eastern and western slopes.

We insist that we cannot divorce a consideration of this project from a thorough exploration of existing and planned transmountain diversions affecting the Colorado River.

Our irrigators do not and cannot understand the technical terms and language used by the engineers, attorneys, and other irrigation experts. And I am talking now of the grassroot farmers in the upper Colorado Basin and placing them in the same category as the grassroot farmers who have appeared before this committee from the eastern slope.

What they can and do understand is an order from their Water Commissioner requiring them to shut down their headgates and close their ditches. Any diversion from the Fryingpan to the eastern slope affects my water right on the Fraser River. Any diversion which depletes the water supply in the Colorado River as a whole beyond safe limits may, and probably will, result in my headgate being shut down when I need the water most.

Now, let me explain that statement. Most of you men are not from irrigation States, and I think you are entitled to an explanation.

As I said a moment ago, we can divide the Colorado River basin in Colorado roughly into the upper reaches, the middle reaches, and the lower reaches.

By lower reaches I mean the areas around Grand Junction, in which intensive farming is paracticed, the raising of fruits and vegetables and that sort of thing.

In our country, where our agriculture consists largely—and by "our country" I mean the upper reaches—in raising hay and cattle.

Decreed irrigation rights on the lower river are generally senior to those on the upper river. That is, they have an earlier date. We in Colorado adhere in irrigation law to the doctrine—"First in time is first in right".

In other words, the man that gets there first gets the first crack at the water.

Mr. D'EWART. Would you yield a minute for a question?

Mr. BARNARD. Yes, sir.

Mr. D'EWART. The information before our committee is that the Colorado Basin is divided into three parts: The lower part, which has to do with giving water to Mexico; the central part, and the upper part, and that each one of these groups is allotted a certain amount of water out of which they make their usage.

Now, the amounts for, in Mexico, I doubt would influence your water right because you have a certain amount under the Colorado compact allotted to the upper basin.

Mr. BARNARD. You and I are talking about different things. You are talking about the Colorado River as a whole.

Mr. D'EWART. That is right, the upper basin, lower basin, and the middle.

Mr. BARNARD. That is right.

Mr. D'EWART. And that is our understanding, Mr. Barnard, of the division of water under this compact.

Mr. BARNARD. That is correct, but in this discussion, I am dividing the Colorado River basin in the State of Colorado into three parts.

Mr. D'EWART. I see.

Mr. ASPINALL. For the benefit of the record, I wish to show that the Colorado River, as far as the Federal Government's water administration processes are concerned, is divided into the upper and lower basins, with the first burden from the upper to the lower, and with the burden of the Mexican Treaty against both of them. So the Mexican Treaty water does affect the upper Colorado River Basin's

share because the last few years there has not been enough water, if it were properly put to use, to take care of the 15 million acre-feet for the 10 years that the Colorado River compact calls for for Mexico. That would have to be against the share of both, or of each.

Mr. D'EWART. That is the information we have. And when you say upper and lower basin, divided into three, that is what we have in mind.

Mr. BARNARD. I hope the committee understands that what I am talking about is the division I personally make between the upper and lower Colorado within the State of Colorado.

Mr. D'EWART. That is all one, what we know as the upper basin?

Mr. BARNARD. That is right.

Mr. ASPINALL. That is the Colorado River's 51-plus percent of the waters allocated to the upper Colorado River Basin for Colorado?

Mr. BARNARD. That is right.

The main river and every one of its tributaries must supply water rights in the order of their respective dates of priority. The first is first. And they follow in the order of number.

When water is withdrawn from the upper reaches of the river and exported beyond its basin, so that there is no return flow to the stream, the amount available to fill the senior decrees is correspondingly decreased.

That is a mere matter of mathematics.

Withdrawal of enough water so that there remains an insufficient supply to meet the demands of the senior appropriators means that the junior appropriators cannot take their water but in periods of low water must let it flow into the river in order to fill the senior decrees. And that is when the water commissioner tells you to shut down your headgate.

Hence, what is done on any tributary of the Colorado River in the matter of transmountain diversion immediately and substantially affects, or may affect, every other appropriator on every other tributary.

Mr. D'EWART. Again, I would like to develop that. When water gets short the senior decrees hold their water rights in full and the junior decrees are first shut off?

Mr. BARNARD. That is right.

Mr. D'EWART. And, therefore, your senior decrees are not affected until the water gets so short that all the junior decrees have been eliminated?

Mr. BARNARD. That is right.

Mr. D'EWART. And, therefore, your senior decrees are not affected?

Mr. BARNARD. Probably not. But it is for the junior decrees that I am talking.

We cannot, therefore, as we are requested by the proponents of this project to do, close our eyes to other transmountain diversions from either the main stream of the Colorado or from any of its tributaries.

Now following is a list of presently constructed and operating transmountain diversion projects with the amount of water either diverted or the right to divert which is claimed on the upper Colorado River and its tributaries.

The Colorado-Big Thompson project, which claims the right to divert, and is geared to divert, 310,000 acre-feet.

The Grand River ditch at the headwaters of the north fork of the Grand River, one of the areas of transmountain diversions, 14,990 acre-feet.

The city and county of Denver through the Jones Pass tunnel from the Williamsport River, 5,860 acre-feet.

The city and county of Denver through the Moffett tunnel, 27,000 acre-feet.

Let me pause there to say that that is much less water than Denver is entitled to take from these two streams. It is much less water than they will take when they have completed a storage reservoir on the eastern slope known as Reservoir 22, which is now being constructed.

I cannot give you the amount of water or an estimate of what will be ultimately transmitted by the city and county of Denver through the Jones Pass and Moffett tunnels to the eastern slope, but it is substantially more than these figures I have just quoted.

The city of Colorado Springs through the newly constructed Hoosier tunnel—and I am estimating and basing my estimate on the testimony which I heard on the witness stand by the engineers for Colorado Springs when they asked for a decree to that project—20,000 acre-feet.

The Twin Lakes project, 38,000 acre-feet. And from the witness' testimony, I rather think that should be 35. I am speaking of average diversions.

Now, gentlemen, that makes a total accomplished diversion, less a shortage in the Big Thompson, which I am going to point out specifically in a moment, of 415,850 acre-feet now going from the Colorado Basin to the eastern slope, despite the knowledge we have no inventory to know how much that is taking out of our stock of goods.

In this list we have disregarded certain other minor and comparatively unimportant transmountain diversions. And I want to pause here and say to you that every gopher hole in the Continental Divide is now being sought as a means to transport Colorado River water to the eastern slope. And I am devoting a great deal of my time in trying to plug those gopher holes.

Following are the projects by means of which it is proposed to divert Colorado River waters to the eastern slope, and the amount proposed to be diverted.

The city and county of Denver from the Blue River, 177,000 acre-feet.

This Fryingpan-Arkansas diversion, 69,200 acre-feet.

Enlargement of the Twin Lakes project, 14,900 acre-feet.

The Moffett Tunnel Water & Development Co. proposing to transmit through Denver's Moffett tunnel, 9,700 acre-feet.

That makes a total proposed to be diverted of 270,900 acre-feet.

Should we minimize the amount here sought?

Thus the grand total of diversions from the upper Colorado River to the eastern slope, completed and proposed, is 686,750 acre-feet.

Now I want to pass to another phase of our discussion.

The statement in Senate Document 106, in paragraph 4 on page 4, to the effect that there is assuredly enough water in the Colorado River beyond requirements for development on the western slope is the statement of the Bureau of Reclamation, speaking through Avery A. Batson, manager of region 7. And since that statement forms the basis for the request of the proponents of this project that it be given

congressional approval, we submit it should be subjected to the closest possible scrutiny for accuracy.

In the absence of any definite or dependable data or information on the subject, and despite Mr. Batson's statement, it occurs to us that it is wise to study carefully former statements of available water supplied on the Colorado River made by the Bureau of Reclamation, and ascertain from such study whether or not this statement of opinion by Mr. Batson is or is not probably based on facts.

Reference has been made by the proponents' witnesses to the Colorado-Big Thompson project, and we shall refer to that project more fully in pointing out to this committee what will, or may, happen in connection with the Fryingpan-Arkansas project if Mr. Batson and the Bureau of Reclamation have overestimated the amount of water available for transmountain diversion therethrough.

The Big Thompson project was constructed pursuant to the provisions contained in Senate Document 80 of the 75th Congress. In the preparation of that document the Bureau of Reclamation estimated the amount of water available for diversion by that project at 310,000 acre-feet. This was in 1937, at a time when definite information on the Colorado River was not available, and that is true now.

I want to read from that document on page 12:

> Under these conditions a yield of 320,000 acre-feet of primary water is secured thereby.

That was later reduced in this document for safety purposes to 310,000 acre-feet.

And on page 33 of Senate Document 80 we find the following statement under conclusions; and let's bear in mind this "assuredly" word in Senate Document 106 and compare it with this:

> There is at least available water supply of 310,000 acre-feet on the upper drainage area of the Colorado River that can be diverted to supplement the present water supply on the eastern slope.

There are two documents here before you with identical statements.

Now pursuant to Senate Document 80 the Government agreed to supply 310,000 acre-feet per year to northeastern Colorado in its contract with the Northern Colorado Water Conservancy District, executed July 5, 1938. And I have a copy of that contract. That contract sets an absolute minimum delivery of 255,000 acre-feet.

Now in Senate Document 80 the cost of construction of the Big Thompson project was fixed at $66 million. To date, and to the best of my information—and I have diligently sought it—that cost has risen to $168 million, and more money must yet be spent upon it before its completion.

In a moment I will point out the relationship between the overestimation of water and the increase in costs.

Now let me pause here to comment a little.

If the same proportion in increase of costs of construction carries through to the Fryingpan-Arkansas project, you gentlemen are considering a project which will cost you not 170 some odd million dollars but in excess of $430 million.

And I want to add this: Going back in my memory and my boyhood, I watched the construction of the first project built by the Bureau of Reclamation in the State of Colorado, which was the Gunnison tunnel project on the western slope. I saw the Bureau of

Reclamation guarantee those farmers that the cost of that project, as these farmers are being guaranteed, would not exceed $20 per acre, and I saw them submit a bill for $73 an acre. And I saw many of our farmers go broke trying to pay it.

This thing of increasing the cost of construction above estimates seems to be a phobia of the Bureau of Reclamation. So let us not delude ourselves that we are talking about the appropriation here sought.

In 1950 the Middle Park Water Conservancy District compiled information to determine how much water the Big Thompson project could actually impound and divert to the eastern slope. Lacking dependable information from any other source—now we could not get it anywhere else—we obtained from the office of the State engineer of Colorado his record of the daily flow of water in the Colorado River and in Willow Creek, the two sources of supply for water in Granby Reservoir. And I live in the shadow of that reservoir wherein the Big Thompson water is stored.

Now it is stated in document 80 that the conclusion of the Bureau of Reclamation as to the amount of water available is based upon a study of waterflow records in 1935 and 1936. We have a record of those years, with a record of every year since, and in that record it shows the daily flow and average annual flow in acre-feet.

As against the estimate of the Bureau of Reclamation that 310,000 acre-feet of water would be available for diversion to the eastern slope, these records disclose the following—I understand that similar records are not available on the streams here affected. I cannot say that as a matter of personal knowledge, it is merely an understanding on my part.

The total average flow of the Colorado River at the site of Granby Dam for the years 1935 through 1950 was 220,771 acre-feet.

Willow Creek for the same period and at the site of the Willow Creek Reservoir was 49,643 acre-feet.

The total average flow of these two streams, if all of it were stored, was 270,413 acre-feet. Thus the total amount of water which could be stored if none were released for senior priorities is 39,587 acre-feet less than the Bureau of Reclamation estimated could be stored. And that much less, gentlemen, than the Government of the United States agreed to deliver in its contract with the northeastern Colorado users.

Now, as stated, the above figures disregard the amount of water necessary to meet the demands of senior appropriators with vested rights out of the Colorado River.

The board of directors of our district, this Middle Park Conservancy District of which I speak, lacking and being unable to obtain any definite dependable information, made an estimate of these water requirements which Senate Document No. 80 says must be recognized and preserved. And we came up with these figures.

And let me interrupt to say, as an accountant friend of my acquaintance once said when questioned as to whether his figures were correct after he had made an extended audit, he said, "No, but nobody else has got any better figures."

To meet senior requirements on the Colorado River would require 49,904 acre-feet. Now by that I mean the number of acres of land irrigated by means of Colorado River water alone, plus the proportionate burden that our part of the Colorado River must bear in supplying

appropriations throughout the entire main stem of the Colorado—49,904 acre-feet.

To meet requirements of senior appropriators on Willow Creek and its proportionate amount of senior appropriators on the Colorado River, 11,863 acre-feet, making total requirements for vested rights which document 80 says must be protected of 61,767 acre-feet.

This would leave available for transmountain diversion 208,646 acre-feet, or 101,354 acre-feet less than the Government agreed to deliver to northeastern Colorado.

And in speculating on this project that is before this committee, I asked myself the question numerous times, if the same percentage of shortage develops here, what are those fellows down there going to think about it?

Now, these figures completely disregard the amount of water necessary to meet future demands for agricultural, industrial, municipal, or domestic purposes, or to preserve fish life, which are guaranteed in Senate Documents 80 and 106.

The board of directors of our district, again lacking definite information, made its own estimate of the amount required to meet these demands; and, disregarding entirely all future uses except agriculture, arrived at these estimated figures:

To meet future deands on the Colorado River, 72,000 acre-feet.

To meet future demands on Willow Creek, 2,000 acre-feet. A total of 74,000 acre-feet.

This would leave available for transmountain diversion through the facilities of the Colorado-Big Thompson project, and assuming the correctness of our estimates as to present and future demands of the western slope, 134,646 acre-feet, or considerably less than half the amount the Government agreed to deliver to northeastern Colorado, which agreement was based upon the educated guess of the officials of the Bureau of Reclamation as to the amount of water actually available for that purpose in the Colorado River. And based on that guess, the solemn assurances of the Bureau of Reclamation made at that time, as they are now made, that there was ample water for diversion.

Parenthetically, it should be stated that, thus far, there appears to be no inclination on the part of the Government to reduce, correspondingly, the sum of $25 million the farmers of northeastern Colorado agreed to pay for this 310,000 acre-feet of water. I wonder when that question will arise to plague the Congress.

Now let us examine some of the results, as they affect the western slope of this overestimation of available water and the construction of the Colorado-Big Thompson project based on the amount of water "thought assuredly beyond the requirements for development on the western slope."

Time will not permit a review of all of them. There are many. I could spend all day telling this committee some of the things we suffer on the western slope under the Colorado-Big Thompson project and of which you people never hear.

Following discovery by the Bureau of Reclamation that they had overestimated the supply of water, every effort was made to obtain additional water to be stored in the Granby Reservoir, in an attempt to justify the cost of construction of the Big Thompson project. And I charge the Bureau of Reclamation officials at public hearing, that whereas the Big Thompson project was constructed originally

to utilize and divert the surplus waters of the Colorado River, this situation had resulted in their striking out of their purposes the word "surplus" and making it read "to divert the waters of the Colorado River" regardless of who owned them or are entitled to use them.

Another dam and reservoir was engineered in 1947 on the Fraser River, designed to impound 600,000 acre-feet of water as against 484,000 in Granby Reservoir, at a cost of many millions of dollars. This water was to be pumped up into Granby Reservoir and there stored, despite the fact that the city of Denver has decrees for all available water flowing in that stream and in the Williamsport River above the proposed reservoir.

The cost of that survey, of course, I do not know, nor do I know the cost of the construction of that reservoir. But it may well be that this committee will be asked to pass upon that and approve that project as a part of the Big Thompson.

Second. The original plan for the Colorado-Big Thompson project contemplated a direct-flow canal from Willow Creek. That is the other source of Granby Reservoir, and that is where all of the water diverted to the eastern slope is stored. The cost of construction and expense of operation would have been comparatively small, that is, in this direct-flow canal, gravity flow. In the hope of obtaining more water from that stream for storage in Granby Reservoir, the Bureau of Reclamation, also in 1947 planned and engineered a storage reservoir on Willow Creek from which waters impounded therein are pumped into Granby Reservoir, despite a tremendous increase in the cost of construction—I would say 10 times at least—and subsequent cost of operation, unjustified by the amount of additional water thus obtained. And that amount is negligible. And I speak from having known Willow Creek for 30 years. I know where their original intake of this canal was located. I know the small streams that enter Willow Creek below it. And almost every drop of water they can get by constructing this expensive reservoir and pumping plant could have been obtained by a simple gravity-flow canal which they originally intended to build. But this was conceived in an effort to make up for their mistake in estimating the supply of water from the Colorado and Willow Creek.

Next, in Senate Document 80, as in 106, the Government has bound itself, as in this case, to preserve the upper reaches of the Colorado River as a fishing stream. It now denies or seeks to evade or avoid its obligations so to do.

Let me explain. The Bureau of Reclamation in 1947 requested the Department of Interior of the United States, Fish and Wildlife Service, to make a survey of the Colorado-Big Thompson project in order that it might determine how much water must be released from Granby Reservoir into the Colorado River to meet the above requirement of Senate Document 80. That is your fishing requirement. This report was completed and promulgated in May 1951.

Parenthetically, it should be stated that the storage of water in Granby Reservoir commenced in September 1950. This report, on page 55, table 6, requires that the amount of water flowing in the storage of the Colorado River under consideration from May 15 to August 31 of each year shall be 100 second-feet to meet the fishing requirement of Senate Document 80.

Despite this report, and despite this commitment in Senate Document 80, the Government has released during that period of time a maximum of 39 second-feet of water, an entirely inadequate amount, according to the Fish and Wildlife Service.

Now applying this formula to the project under consideration, it would leave in the Fryingpan River approximately 23 second-feet for its preservation as a fishing stream instead of the 60 second-feet which is estimated.

Representing parties interested in seeing to it that the Government comply with this commitment, I intervened in case No. 2782, to which I referred, in the United States District Court for the District of Colorada, set up facts here related, and asked that the court in its decree require the Government to comply with Senate Document 80 in that respect. And the reply filed by the attorneys for the Department of Justice, representing the Bureau of Reclamation, in effect, denies that the Government is bound by that commitment. I have that file with me for inspection.

We were impressed by repetitious references made by the proponents of this project to the State Game and Fish Commission of Colorado and to the Federal Fish and Wildlife Service. With commendable concern for one of our greatest natural resources, they explained to us that the Fryingpan River is to be preserved in all of its beauty for a mecca for fishermen and nature lovers. It is one of the finest trout streams in the United States.

We in Grand County once had a most beautiful fishing stream, also famous throughout the United States. We in Grand County were assured by the Bureau of Reclamation, as Pitkin County is here assured by the Bureau of Reclamation that our stream would be preserved. We in Grand County ask you to look at the thing that once was our beautiful, silvery Colorado. We in Grand County have learned, to our everlasting sorrow, that the assurances of the Bureau of Reclamation are utterly meaningless when the utilization of water for the generation of electric energy comes in conflict with its use to preserve natural beauty, scenic attractions, and the outdoor sports which we, in common with all other Americans, have always cherished.

Shall we permit the same fate to befall the equally beautiful Fryingpan, if it is found that the Bureau of Reclamation overguessed the amount of water which can, with safety, be diverted from it to the eastern slope.

Now the next thing. These are the results of the overguess on the Colorado-Big Thompson.

In acquiring a right-of-way for the Granby Reservoir, the Government obtained 75.43 second-feet of direct flow water. I am not going into the details of that. It is a technical matter. They obtained 75.43 second-feet of direct flow of water decreed to agricultural lands now inundated by the Granby Reservoir. Under the laws of the State of Colorado that water cannot be stored legally but must be released to junior appropriators downstream. It is being stored in the Granby Reservoir and the junior appropriators are being deprived of their right to it.

Despite the guarantees which are contained in Senate Document 80 that the Colorado-Big Thompson cannot be permitted to infringe upon or in any manner interfere with the future development of the western slope, in action 2782 in the District Court of the United

States for the District of Colorado the Government contends that it is not required to comply with those guarantees. I imagine that startles you.

Representing an owner of arable land, as classified by the Bureau of Reclamation itself, in the Colorado Basin, who obtained a decree for water to irrigate it in the State court pursuant to Colorado law, I then intervened in the above action and asked that it be provided in any decree entered by the court that the right of that intervener to water to irrigate this land be granted in preference and as a right senior to the storage rights of the Government in Granby Reservoir, thus giving effect to that guarantee in Senate Document 80. I asked the court to do that.

Mr. D'EWART. Will you yield there a minute?

Mr. BARNARD. Yes sir.

Mr. D'EWART. The only time you can insist on delivery of that water is at the time of the year when you can use it.

Mr. BARNARD. Exactly.

Mr. D'EWART. And the Bureau of Reclamation would have the right to store it the rest of the time.

Mr. BARNARD. That is correct. But we use that water when there is ample water in the Colorado River for every purpose during the periods of high water and up into part of the periods of low water, and we only claim the right to use it when we can take it from the river and apply it to our lands. We admit when that time is passed we have got to release it in the river and let them store it.

The Government filed a reply denying that that right exists, or, if it exists, denying that it is senior to the Colorado-Big Thompson project. So there we are in court trying to uphold the very guarantees which are included in Senate Document 106.

Further, transmountain diversions, including that now before the committee, will endanger, if not completely prevent future development of the western slope, unless the survey now being made discloses that there is sufficient water to permit such diversions. The development of the western slope of which we speak includes the following, which we insist must be protected:

First: For the irrigation of thousands of acres of arable land now unproductive except for meager pasture. We have heard of the unproductive land in the Arkansas Valley, and I know it is there. In Senate Document 80 this acreage is estimated at 122,830 acres.

In passing, it should be stated that area 4 of the Bureau of Reclamation is now conducting a survey of arable lands in the Colorado Basin above the junction of Gunnison and the Colorado Rivers—the one to which Mr. Saylor referred to a few minutes ago—which will be ready sometime this summer.

That man in charge of that project stated to me within the past 60 days that it had proceeded sufficiently far so that he could state definitely that the amount of arable land estimated in Senate Document 80 would probably be doubled in his report.

Now this thing is based upon that original 122,000 acres. Now the Bureau says we will double that, and still we are assured by Mr. Batson that there is enough water available.

2. The increase of population in the western slope of the State. This population is increasing and the increase is creating demands for

additional quantities and better quality of water for municipal purposes. That is minor. We pass it.

Third. The western slope is developing industrially. These industrial developments include, but of course not exclusively, the oil-shale industry and the production of vanadium, uranium, and other minerals, which are ingredients of atomic weapons and energy. Mr. Boyd Guthrie, in charge of experimental work at the Rifle oil-shale plant on the Colorado River, testified at Breckinridge in 1951 that the oil-shale industry, when in full production, will require 240,000 acre-feet of water annually. He also testified that the industry would employ approximately 50,000 persons, resulting in a population increase of approximately 350,000.

The importance of the oil-shale industry cannot be overemphasized. Oil-shale deposits in northwestern Colorado and eastern Utah contain greater oil reserves than found anywhere in the world, and we submit that that reserve of oil will become of extreme importance to the United States from the standpoint of national defense and security.

Next, since this project was first conceived and investigated, and during its progress through the various boards and bureaus through which it has passed, who have testified here, it has been learned that practically all, if not all, known deposits of uranium in the United States are centered in the upper basin of the Colorado River near the towns of Rifle, Grand Junction, Uraven, Naturita, and Durango, in the State of Colorado, and Hite, Monticello, and Blanding in Utah, and in the neighborhood of Ship Rock on the Arizona-New Mexico border, all in the upper Colorado Basin.

The extent of the use of water necessary in the production of uranium is unknown to us, but we are advised that tremendous quantities of water will be required.

Has this use of water on the western slope been considered by the Bureau of Reclamation in arriving at its conclusion, voiced in Senate Document 106, that "The amount of water assuredly beyond requirements for development on the western slope" is actually in the Colorado River?

Mr. Chairman, I have just a few more moments and observations to make.

Has this use of water been considered? Has the Bureau of Reclamation consulted the Atomic Energy Commission in that connection?

We need not comment further to this committee on the great importance of the development of the production of uranium from the standpoint of national defense and security alone.

Now we are told that guaranties and operating principles are included in Senate Document 106 which protect the western slope; they are found therein. Similar guaranties and operating principles are found in Senate Document 80. At this moment, we of the western slope are engaged in what almost amounts to a death struggle with Denver, Colorado Springs, the South Platte Water Users Association, and other eastern slope interests, in the Supreme Court of the State of Colorado and in the United States District Court for the District of Colorado in a desperate effort to maintain the integrity of that document and to preserve guaranties and operating principles contained therein which are attacked by those eastern-slope cities. Ambitiously attacked.

In fact, a former Governor of Colorado, one of the attorneys for Colorado Springs before his death, made the statement to me, and in my presence, that Senate Document 80 is nothing but a scrap of paper.

It is with the performances rather than with promises of the Bureau of Reclamation that we are concerned; and it is the dearth of performance, not lack of or absence of promises, which lead us to cast a skeptical eye at the guaranties and operating principles contained in Senate Document 106. And that results in, gentlemen, from several years of sad experiences.

In conclusion, we thank this committee for hearing us. If our discussion of the matter now before it has been too extended, we ask the committee's pardon. Our justification is the fact that we consider it our duty to the people of Colorado, both on the western and eastern slopes, to the Congress of the United States, and to the taxpayers of our Nation to call to the attention of this committee as forcibly as we may, facts and circumstances which we submit to the committee make entirely impracticable and improper the approval by this committee of the Fryingpan-Arkansas project at this time.

Thank you.

Mr. HARRISON. Thank you, Mr. Barnard.

It is my understanding that Messrs. Fred McLaughlin and William Nelson are here available for questioning by the committee, as also are you, Mr. Barnard.

The committee will now stand in recess until 2:30.

(Whereupon, at 12:05 p. m. the subcommittee recessed to reconvene at 2:30 p. m. of the same day.)

AFTERNOON SESSION

(The subcommittee reconvened at 2:30 p. m.)

Mr. HARRISON. The committee will come to order.

Mr. Barnard, will you come back and take the chair, so some members can ask you some questions?

STATEMENT OF JOHN B. BARNARD, GRANBY, COLO.—Resumed

Mr. BARNARD. Yes, sir. But before those questions are asked, may I ask permission to supplement briefly my remarks this morning by data which were handed to me at noon?

Mr. HARRISON. If there is no objection.

Mr. SAYLOR. About what?

Mr. BARNARD I had some data handed to me at noon which were not available to me, and I should like to supplement what I said this morning, very briefly, by quotations of these data.

Mr. HARRISON. If there is no objection, you may proceed.

Mr. BARNARD. This appears in the volume, The Colorado River, with which I think the committee is all familiar, and refers to a report on the Colorado River promulgated in March 1946, under the direction of J. A. Krug, Secretary of the Department of the Interior, sponsored and prepared under the general supervision of the Bureau of Reclamation, Michael W. Straus, Commissioner.

In the volume is a section entitled "Comments of the State of Colorado." The letter of transmittal of these comments is dated December 17, 1946, and is signed by John C. Vivian, Governor, and chairman of the Colorado Water Conservation Board, Clifford H. Stone, director, C. L. Patterson, chief engineer, R. J. Pitton, consulting engineer, and Jean S. Breitenstein, attorney.

On page 56 are found these pertinent comments, which are the comments of the Colorado Water Conservation Board, as I stated. And I am quoting.

4. The report is misleading and inconsistent in that it lists individual projects and presents estimates of construction costs, benefits to the Nation, and collectible revenues based upon the assumption that all of such projects will be constructed and operated to the limits of their ultimate capacities. At the same time, the report concludes that inadequate water supplies will prohibit the construction of some of these projects. Thus, in the total figures for costs, returns, and benefits, consideration is given to projects which cannot be constructed.

Then in paragraph 9 on the same page we find this language:

9. The record is unsound in that it recommends that the States approve projects for the so-called initial stage of the development, without there being available at the same time adequate data and information for the determination of the desirability, economic feasibility, or probability of authorization and construction of individual projects. Only in instances where detailed investigations are completed and individual project reports are available, can there be a worthwhile selection of any projects.

Mr. HARRISON. Mr. Saylor, do you wish to ask some questions?

Mr. SAYLOR. I do. I want it clear in the record that I have not seen Mr. Barnard since he left the witness stand this morning. I went back to my office after hearing him testify, and I read in detail this Fryingpan-Arkansas project as shown in Senate Document 106, and I think the committee should pay particular attention to item No. 60, which appears on pages 14 and 15. This reads as follows:

The water to be imported from the Colorado River watershed is to come out of Colorado's apportionment under the upper Colorado River Basin compact of October 11, 1948. Under that compact the State of Colorado is apportioned the consumptive use of 51.75 percent of the water available for use in the upper Colorado River Basin, after deducting a use of not to exceed 50,000 acre-feet annually in Arizona. Colorado's apportionment of Colorado River Basin water is estimated to be about 3,855,000 acre-feet annually. It is estimated that about 1,590,000 acre-feet will be required for use by existing and authorized projects, leaving 2,265,000 acre-feet annually for use by future projects. Of this amount it is estimated that 440,000 acre-feet should be reserved to meet Colorado's share of depletions caused by main stem reservoirs required for long-time holdover storage to make the water available for use under the Colorado River compact. About 1,825,000 acre-feet annually would remain for use by potential projects. These figures indicate the availability of about 1,750,000 acre-feet of water annually, after full development of the proposed initial development, Gunnison-Arkansas project, to meet other potential uses of Colorado River waters in Colorado.

Now, the project known as the initial development of the Gunnison-Arkansas project, Roaring Fork division, states on page 44:

The western slope stream flow is not overappropriated. After due allowance has been made for all present and future western slope use, stream flow is available for transmountain diversion and is subject to the terms of the upper Colorado River compact.

If you will look at the figures that appear in the Colorado River, under House Document 419, these figures just do not jibe. I do not know who is right, but certainly I feel that somebody should, whether it is from the Department or the proponents of this measure, try and

justify them, because on page 151, dealing with the present and potential stream division in the upper basin, for Colorado, the present depletion to be consumed in the basin is 1,129,000 acre-feet. To be exported is 102,300 acre-feet.

And all they allow for the existing project to increase is 65,000 acre-feet be consumed in the basin and 442,000 acre-feet to be exported.

As I say, that leaves for the potential project 870,000 acre-feet to be consumed in the basin and 1,652,000 acre-feet to be exported. But when you add those figures up, the present depletion, the future increase, and the potential projects, you come to 4,260,380 acre-feet. And the Fryingpan-Arkansas project says that there is only 3,855,000 acre-feet. So that there is 500,000 acre-feet more in these projects than you admit is in the river.

All this committee would like to do is to find out who is to get what water.

I can correct Mr. Barnard's statement when he says that most of the people on this committee do not know what a ditch is and do not know what a headgate is. For his information, most of the people on this committee come from those kind of States, and they do a lot of irrigating out there and do know about it, and there are very few of us that come from the East.

But the figures which the Bureau put out indicate that you have a half million more acre-feet to be used than you actually have under your compact in the river.

I am sorry Mr. Breitenstein is not here, because I would like to have asked him. If there is anybody here that can answer for him or for the State of Colorado, I would like to have them answer.

Mr. CHENOWETH. Mr. Tipton is here, I think.

Mr. SAYLOR. Or anybody in the Colorado Water Conservation Board. I would like to find out from them when you have changed your position from what is published in House Document 419.

Mr. HARRISON. Maybe Mr. Tipton can answer.

FURTHER STATEMENT OF ROYCE J. TIPTON, DENVER, COLO.

Mr. TIPTON. Mr. Chairman and members of the committee, I am the same Royce J. Tipton who testified yesterday as consulting engineer for the Colorado Water Conservation Board.

Congressman Saylor, I just came into the room and I did not get your full remarks, but I think I know what you are talking about. The last figure you were reading from was what I think we call the Blue Book.

Mr. SAYLOR. That is right.

Mr. TIPTON. This so-called Blue Book has been characterized by the Bureau of Reclamation in two different ways. One is an inventory of water uses. Another is a comprehensive plan.

The data that have been compiled in this document were collected over a long period of years and were completed before the upper Colorado River compact was negotiated. The values which you last read were the outside potential. They have nothing to do with rights except those values you read as to present uses. Now, those are rights, those are covered by rights, I think a 1,100,000 acre-feet,

some such amount, and then a small amount for increases to take care of present uses.

The other values you read, the values of 3,850,000 acre-feet or 3,880,000 acre-feet is Colorado's share of the seven and one-half million acre-feet allocated to the upper basin. Of that 3,800,000 acre-feet there is an actual consumptive use of about 1,100,000 acre-feet.

In order to bring the full use up to what we call appropriated rights, it will bring that figure up to about 1,500,000 or 1,600,000 acre-feet.

Those are in round numbers.

Deduct that from the 3,880,000 acre-feet. You have left 2,200,000 acre-feet.

Colorado's share of the future evaporation in the future holdover reservoirs may be in the nature of 400,000 acre-feet.

That leaves unencumbered—even that 400,000 acre-feet is not encumbered, but it is certainly wise to reserve that for the reservoirs we know we will have to have in order to permit us to make our full use of the water. So when that is deducted from the balance, you get the true figure of the unencumbered water in Colorado, her share of the Colorado River basin water, unencumbered.

Now, summarizing again, the Blue Book is merely an estimate, an outside estimate of potential.

Mr. SAYLOR. Has there been anything later by the State of Colorado about the Bureau of Reclamation than House Document 419?

Mr. TIPTON. Is that the Blue Book?

Mr. SAYLOR. Yes.

Mr. TIPTON. That is merely for information as outside potential. That does not encumber one drop of water. It cannot. It is merely an estimate of potential, not only in the upper basin, but in the lower basin. The only way the water can be encumbered is by the regular appropriation procedure in the State of Colorado. First, the water had to be divided among the State of the upper Coloraado River Basin, which was done. And then the waters are encumbered by the orderly processes under the laws of each individual State.

Mr. SAYLOR. Mr. Tipton, I appreciate your explanations, but they do not agree with the letters that you signed when comments from the State of Colorado were made back in 1946.

Mr. TIPTON. I still have the same belief, Congressman.

Mr. SAYLOR. In other words, this is what it says here: "This report is unsound in that it contemplates a general group authorization for projects for construction rather than a specific authorization of individual projects. Colorado believes that each and all of the foregoing views are fundamental and important, and recommends that the report be modified to conform therewith.

Now, I asked you whether or not there has been any modification or any revision of this report, because if there is, I will be very frank to tell you I do not know about it.

Mr. TIPTON. There has not been, Congressman. And Congress did not act on this report in any fashion except to print it as a document.

Let me assure, Congressman Saylor, I have not changed my position one iota from what you read, and that is illustrated by what we are doing at the present moment. We are not coming in to ask

for blanket authorization such as was done in the Missouri River Basin, we are asking for an authorization for a specific project based upon several years of detailed engineering studies. We are proceeding in exactly the fashion we suggested by our letter. We are following the same procedure that we said in here should be followed.

Mr. SAYLOR. Tell me, Mr. Tipton, is it your belief or the belief of the Colorado Water Conservation Board that there should be no over-all plan for the development of the waters of the Colorado River in Colorado?

Mr. TIPTON. Oh, no. There should be an overall plan. But the overall plan cannot be developed and authorized at one time. It is our belief, it should be authorized as specific units.

Congressman, I want to have the record precisely clear on this question of potential use as opposed to present uses and unencumbered water under our existing laws. If the record is not clear on that, I want to make it clear.

Mr. SAYLOR. I will be very frank to tell you, as I went over this again in the last several hours, I am satisfied when they had this report 419, which deals with the development of the Basin, however, it does so in three phases—the Green, the Grand and the San Juan. And there is no individual item or project that you will find.

Mr. TIPTON. There is a table, Congressman, which I cannot put my finger on at the moment in this report which gives the total potential for the entire Colorado River Basin, the upper basin and lower basin. That total potential exceeds by a substantial amount the total water supply in the basin.

Mr. SAYLOR. That is right. I think the table you are referring to is the one I have been reading from on page 151.

Mr. TIPTON. That is the upper basin?

Mr. SAYLOR. The upper basin, showing 9,136,500 acre-feet.

Mr. TIPTON. Yes. I do not question that. In any basin in the West, with the possible exception of the Columbia River Basin, the in-basin and out-basin potential far exceeds the available water supply. There is not anything wrong with that.

In the Columbia River Basin, the water supply is very large and insofar as anybody knows, the water supply far exceeds the consumptive use potential. We do not have enough water in any of our western streams to irrigate in the plains sections all the lands available.

Let me call your attention again to table LXXIII. Note the column which gives the exportation of 1,652,000 acre-feet.

And out of the Grand, which is what we call the Colorado River, there is given 1,492,000 acre-feet as an exportable potential.

I can tell you of my own knowledge and of my own investigation that that volume is considerably inflated. There are 750,000 acre-feet of that that goes to make up water that the Bureau of Reclamation, at the time the Blue Book was prepared, assumed would be physically brought from the Blue River and its tributaries to the South Platte. The way that was arrived at was to assume the gross amount of water available to a very elaborate long collection system to be 100-percent exportable. There was no account made of the prior rights to the use of water immediately below the collection system. There was no account made of what we call undivertable peaks. It is not economic to construct a system to divert every drop of water. There was no account made of natural canal losses.

I was a member of a committee that was set up to consider the route for bringing this water into the eastern part of Colorado. When I found out how the water supply for that potential project had been estimated, I suggested a subcommittee on hydrology to study the matter. As a result of such study the potential of this project has been reduced from 750,000 acre-feet to about 430,000 acre-feet.

So I say some of these values in the Blue Book represent the limit and are beyond anything that can be considered practical.

I could pick to pieces many other of the estimated values but I do not think it is necessary. I think it is quite important, however, for the record to be clear on this point, and if it is not, I want to make it clear, or do what I can to make it clear.

Mr. SAYLOR. I want to make it clear that I do not want to be a party to not allowing Colorado to use its water, but I certainly am going to oppose Colorado's any attempt to overappropriate or to construct anything that will use more water than they have entered into agreement to use, that they are entitled so take out of the river.

Mr. TIPTON. Yes, sir; I agree 100 percent, and that is one purpose the Colorado Water Conservation Board has, to keep the program in balance.

I wish to refer to the Blue Book, page 186. That is table 121. That is a summary of the so-called potential for the entire Colorado River Basin. You will note that the total is 20,197,200 acre-feet. Now some place in here the water supply is estimated at some 17,800,000 acre-feet. In other words, there is over 2 million acre-feet total overall potential in excess of the total water supply.

Mr. ASPINALL. In the last two years the total water supply has not been that either, has it?

Mr. TIPTON. No. There has been a revision, or there has been a restudy, Congressman Aspinall. There have been two things that happened: There has been a drought period. But there has been a restudy by the Bureau of Reclamation of the water supply of the Basin based upon a method that was developed by the engineering advisory committee of the Upper Colorado River Commission,and that has indicated somewhat more usable water under the compact than has been formerly estimated because depletion by man at the point of use is greater than the depletion by man at lower points of measure. Man is salvaging some streamflow losses because of his use of the water.

Mr. Chairman, may I ask if I have cleared up this particular point?

Mr. SAYLOR. I think you have, except one thing with regard to table 121, which you referred to, showing the total ultimate depletion of the Colorado River at 20,197,200 acre-feet. There is absolutely nothing in that figure which shows a million and a half acre-feet which was annually delivered to Mexico.

Mr. TIPTON. The page number again, Congressman?

Mr. SAYLOR. Page No. 186. In other words, it shows the uses by the seven States—Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming.

Mr. TIPTON. That is right, sir. That is the very point I am making. This is potential. This has little to do with water rights. It is potential and certainly is greater than the water supply.

For example, the upper Rio Grande Basin serves three States. The potential exceeds the water supply by many times, but the right to use the water does not exceed the water supply.

STATEMENT OF JOHN B. BARNARD, GRANBY, COLO.—Resumed

Mr. SAYLOR. I would like to ask Mr. Barnard, you made the statement that you approve the reregulation of the Arkansas River. Am I correct in that?

Mr. BARNARD. You are correct.

Mr. SAYLOR. Now I want to know whether or not in that approval which you have given you want to continue the Twin Lakes diversion.

Mr. BARNARD. You mean the existing Twin Lakes diversion?

Mr. SAYLOR. The existing Twin Lakes diversion.

Mr. BARNARD. I will say this, Congressman Saylor: That that is a right which has been adjudicated by our courts and is in existence, and we cannot question it, nor can we question the right of the Twin Lakes—I assume we cannot—to increase its diversion by additional facilities to the extent of its decree.

Mr. SAYLOR. So that the diversion—in other words, when you make the statement that you approve the reregulation of the Arkansas River, you include in that the diversion from the Twin Lakes as they are presently taking water, and also to the extent of the decree which, as I understand it, is somewhat in excess of the amount they are presently taking?

Mr. BARNARD. We cannot question that. Let me put it that way.

Mr. SAYLOR. Now you made the statement, I believe, that this did not have the official approval. Now you have heard Mr. Breitenstein and also Mr. Tipton testify that this does have the approval of the Colorado State Water Conservation Board.

Mr. BARNARD. That depends on what you mean by "this." If you are talking about the project as it was originally conceived and reflected by Senate Document 106, apparently it does. It am talking about the project as now being presented to this committee, and I say that it has not.

Mr. SAYLOR. Wherein do you say that this project being presently presented to us differs from the project covered in Senate Document 106?

Mr. BARNARD. I am not engineer enough to answer that, Mr. Saylor, except ——

Mr. SAYLOR. As a layman, where is the difference?

Mr. BARNARD. Except to say this as a layman: You have added some $30 million of expenditures. That just is not thin air, that represents some additional construction or some different construction of some kind, which I am not engineer enough to point out.

But on that subject, let me point this out also; that in my discussion this morning I made it clear that not only were the facts relating to this project different now than they were at the time this approval was given, but the circumstances surrounding the approval have changed, which includes specifically, and most important, the fact that Colorado has finally decided to make a definite inventory of those water rights.

Mr. SAYLOR. Do you know whether or not the Governor has requested the Colorado State Water Conservation Board to reconsider its original approval?

Mr. BARNARD. I cannot answer that. I do not know. I do know that the Governor signed the bill authorizing and directing the making

of this inventory. Now whether he considered this project in connection with that, I do not know.

Mr. SAYLOR. That is all at the present time.

Mr. HARRISON. Any questions?

Mr. D'EWART. You mentioned the Rifle plant using, I believe 1,400,000 acre-feet of water annually?

Mr. BARNARD. No, I did not say that, Mr. Congressman.

Mr. D'EWART. What was it?

Mr. BARNARD. I said that Mr. Guthrie, who is in charge of that experimental process, testified that when in production that plant would use 240,000 acre-feet of water, plus the amount required to provide municipal water for the increased population of approximately 350,000 people.

Mr. D'EWART. I visited that plant at one time, and I do not remember that they used any water in deriving so-called oil from the shale.

Mr. BARNARD. I can only answer that by saying what Mr. Guthrie says, and that is that it does use a substantial amount of water, and it is mostly a consumptive use. I do not know of my own knowledge.

Mr. ASPINALL. If the gentleman will yield, what Mr. Guthrie was talking about was refining processes that are necessary and not the refractory processes.

Mr. D'EWART. But that does not have to be refined at the Rifle plant.

Mr. ASPINALL. No. Much to Colorado's dismay we find that we do not have anything refined in Colorado. It is practically all going out to some other place.

Mr. D'EWART. If it is going to interfere with your use of water for more beneficial uses, I would not think it would dismay you too much.

Mr. ASPINALL. Of course, the people on the Western Slope say they have the right to some industrial development over there.

Mr. HARRISON. Any further questions, Mr. D'EWART?

Mr. D'EWART. No.

Chairman MILLER. I would like to observe, Mr. Harrison, you have worked rather diligently on this proposal, and I think the witnesses both pro and con that have been before the committee have realized that there were some searching questions asked. And as a group coming from the long distances they have, Colorado and other places, to appear on the bill, I hope they do not feel that the committee has neglected them in any way in trying to get a hearing for everyone that wanted to be heard.

When the hearings were first set up I suggested to Judge Chenoweth that he have 5 to 6 witnesses, and he thought he could hold it down to that. I am not just sure how many you have had, but I think it is 2 or 3 times that number. I hope that all of those who wanted to be heard have been heard.

I am sure that the subcommittee will examine carefully the evidence before it, and if the bill is reported to the full committee, it will again be reexamined. Just to show you we have a long tedious course, it then probably will be reported to the House, and then there will have to be a rule, and then, too, there would be some more discussion on the floor of the House which will generally give knowledge to the public and they could have their representatives present their arguments. And should it get by the House, it must then go to the other body and go through the same tortuous route of hearings before com-

mittees. Then of course there is the matter of appropriations that would have to be analyzed carefully, and the Appropriations Committee is pretty tough. They look it over very carefully to make sure it is feasible, and there is not any way for the municipalities along the line to sort of do the job themselves without coming to Uncle Sam.

Then the Rules Committee is a pretty tough committee. Judge Chenoweth is on that committee. I doubt whether the judge would have any more than ordinary influence, one vote, I suppose, to determine the thing, and it would again be weighed very carefully.

Mr. SAYLOR. If you will yield there, I would like to say that if this project—I would like to say for the benefit of the witnesses who have come here, both pro and con, that regardless of the outcome we have proceeded to this point only because of the fact that Judge Chenoweth has just taken the very bulldog attitude he has and insisted we have a hearing. He says it is in his district and he wants to be heard. And he has belabored each and every member of the committee to make sure we do hear it.

I want to say that regardless of the outcome, you have a champion of Colorado in Judge Chenoweth.

I do not know what the outcome is going to be, but I would disagree with the good doctor. I think the judge has a little more influeince than just one vote around here.

Chairman MILLER. I am sure he has on this committee. Now with his own Rules Committee, I think he might have one vote over there.

Mr. CHENOWETH. I want to assure you, doctor, whenever you come before the Rules Committee you will get what you want. [Laughter.] I am sure you have never been turned down on anything yet.

Chairman MILLER. Even though the Fryingpan-Arkansas project does not proceed this year, I am sure it is important enough that perhaps Mr. Harrison will want to consider, and as chairman of the full committee I think it might be advisable, having the hearings printed so they will be available to the group.

In my own opinion, I do not want to make that conclusive, but it seems to me there are some questions here that perhaps a little more thought or study might well be in order to make sure that the project is feasible. And the new policy of using Federal moneys to supply municipal water with not too much benefit to irrigation and reclamation might want to be reviewed rather carefully.

But I am glad you are here, and glad Mr. Harrison has been able to start close to 9:30 in the morning and have a couple of afternoon hearings. If there is anyone that has not been heard that wants to be heard, I am sure Mr. Harrison will want you to be heard or to file a statement.

I think that is all.

Mr. HARRISON. Do you have any questions, Mr. Aspinall?

Mr. ASPINALL. Mr. McLaughlin, do you wish to make any statement at all?

Mr. MCLAUGHLIN. I believe I have been heard through Mr. Barnard, as far as I am concerned on the $100,000. That is pretty plain. My stand is that I would like to have the survey completed before I go further.

Mr. ASPINALL. Was anything said during the hearings of the State legislature on the appropriation bill for the $100,000 for the survey referred to about the Fryingpan-Arkansas project?

Mr. McLAUGHLIN. No, sir, there was not. It was originated on the western slope and as a western slope project. It had nothing to do with Denver. The main reason for the $100,000 is the determination of the actual potential in the State to keep both eastern and western slopes happy. I hope that will be accomplished.

Mr. ASPINALL. Mr. Chairman, if the project is authorized and construction should be commenced, the town of Leadville will be very seriously affected in its responsibility of taking care of the additional personnel school problem which will be involved. Accordingly, Mr. Joseph C. Weber, superintendent of the schools at Leadville, Colo., would like to have permission to file a statement in our hearings.

Mr. HARRISON. Without objection, he will have that permission.

(The statement referred to follows:)

LEADVILLE PUBLIC SCHOOLS,
Leadville, Colo., June 9, 1953.

Hon. WAYNE N. ASPINALL,
Member of Congress, Fourth District, Colorado,
Congress of the United States,
House of Representatives, Washington, D. C.

DEAR CONGRESSMAN ASPINALL: I am rather concerned about the proposed Frying Pan-Arkansas project, and the potential impact on our school finances. As you know the Sugar Loaf Dam, Twin Lakes Dam, and the 6-mile tunnel, as well as many canals and power pens will be in Lake County (and many of these in our school district). Leadville is the largest city in the county, the county seat, and the natural center for business in this area. There are approximately 5,000 people in Leadville.

The Resurrection Mining Co., who employed 300 men at the start of the year, has ordered their mine and mill closed and salvage operations started at once. All salvage to be completed by August 1. This seriously hinders the economics of our school district because of the loss of valuation based on production and real property valuation. Many of the men will be hired at Climax, but will continue to live here. Climax is not in our school district. We will have the children, but not the valuation to tax to support the schools. We have never received any Federal money because of Climax operations.

Last October 7 our voters approved a $699,000 bond issue to build new schools. With this and funds from other sources we are constructing a new elementary school and a junior high at a total cost of $767,000. With the loss of valuation because of the Resurrection we will have a hard time to keep from defaulting. With lead and zinc prices down so is the production. This also results in a tax loss because of the decrease in tax based on production. All metal-mining communities are hard pressed on finances because of metal prices.

I have always claimed, based on my knowledge and study of Bureau of Reclamation projects, that the local school district takes a beating during the construction stages. Reclamation talks in terms of hundreds of men employed on the project in this area. We are hard pressed now. What condition would we be in if adequate provision is not made for schools during the construction stages? My own belief is that aid should definitely be written into the project bill, and should be defined in terms of children, teachers, buildings, desks, supplies, textbooks, and other necessary expenses involved. The Leadville Chamber of Commerce agrees with my viewpoint regarding the schools.

Thank you for your interest in this matter.

Sincerely,

JOSEPH C. WEBER,
Superintendent of Schools.

Mr. ASPINALL. Mr. Chairman, I have two telegrams.

One telegram is from J. H. Smith, dated June 9, in which he states the position of the Colorado Cattlemen's Association under date of June 9 on this bill. I would like to have that telegram placed in the record.

Also a telegram from the Lions Club of Aspen, Colo. Do I have that permission?

Mr. HARRISON. Without objection, the two telegrams will be admitted.

(The telegrams referred to are as follows:)

ASPEN, COLO., *June 9, 1953.*

Representative WAYNE ASPINALL,
House of Representative:

Colorado Cattlemens Association passed resolution at Greeley, Colo. on June 7 opposed Frying Pan diversion until survey is completed. Please advise Crawford and Glidden.

J. H. SMITH.

ASPEN, COLO., *June 4, 1953.*

CHAIRMAN, HOUSE SUBCOMMITTEE ON RECLAMATION AND IRRIGATION,
House Office Building:

Up to present neither State Water Board nor Bureau of Reclamation has ever discussed Frying Pan-Arkansas Transmountain diversion project with this community or county where 90 percent of water to be diverted originates and where opposition to project is virtually unanimous. We urge your committee repudiate these star chamber methods by insisting that decision as to authorization of project await results of Colorado State water survey scheduled for November 1 completion. To do less would be to underwrite a reclamation policy based both on discrimination and ignorance of basic facts.

LIONS CLUB, ASPEN, COLO.
ELBIE L. GANN, *President.*

Mr. CHENOWETH. Mr. Chairman ,at this point I would like to insert in the record a telegram from Mr. Charles E. Sabin, a prominent attorney of La Junta, Colo., commenting on the action of the Colorado Cattlemens Association.

Mr. HARRISON. Without objection, the telegram will be admitted.

(The telegram referred to is as follows:)

LA JUNTA, COLO., *June 9, 1953.*

Hon. J. EDGAR CHENOWETH,
Congressman, Congressional Office Building, Washington, D. C.:

The action of Colorado Cattlemens Association at Greeley last Saturday asking Congress to not authorize further transmountain diversions of water in Colorado pending completion of studies and surveys authorized by last legislature particularly the Frying Pan Project was adopted Saturday afternoon when nearly all delegates had left meeting and without any prior notice it would be called up. It does not represent the views of at least eastern Colorado cattlemen.

CHAS. E. SABIN.

Mr. ASPINALL. Mr. Chairman, of course the important problem we have had all through the hearings as far as the people of Colorado are concerned is the amount of water that may be available for transportation to eastern Colorado from the Colorado River Basin within Colorado.

There has been prepared by the staff of the Daily Sentinal of Grand Junction a pamphlet called Western Colorado's Water Situation. It sets forth several resolutions, several possibilities, several questions that are involved in this matter. For the purpose, not of introducing it as factual evidence, but for the purpose of helping this committee in its final deliberations on this project, as well as others, I would like to have this made a part of the record.

Chairman MILLER. Reserving the right to object, have it made a part of the record or a part of the file?

Mr. ASPINALL. A part of the record, Mr. Chairman. And I think that the opponents have that right in the light of all of the material that has gone in as part of the record for the proponents.

Chairman MILLER. Did you say you were not sure it was factual?

Mr. ASPINALL. I said I did not personally underwrite it.

Chairman MILLER. If it is just hearsay and propaganda, I would be inclined to not fill up the record with material that is not authentic. Apparently this is not signed. I do not know who put it out. I find no signature by anyone that sponsors it, anyone who says, "This is it and we are sponsoring it."

Mr. ASPINALL. I have just stated how it was prepared.

Chairman MILLER. This says:

> This pamphlet has been prepared as a public service by the Daily Sentinel for those interested in transmountain diversion. It is an effort by the Sentinel and its staff members, including William Nelson, slope editor, Walter Johnson, former staff member, and others to bring, in outline form, problems existing today and as discussed by many and various interests.
>
> Many of the points are controversial—all are pertinent. Decisions of the next few months in Colorado will affect the future for generations.

I wish the gentleman might hold it up.

Mr. ASPINALL. Mr. Chairman, the author is here. He did not wish to take the witness stand at this time, but if you will call on Mr. Nelson, who was listed as a witness, I would like for him to make a statement as to how it has been prepared, and then I will make my request.

Mr. HARRISON. Will you come forward, Mr. Nelson, and state your name and position and your acquaintance with the water matters of Colorado.

STATEMENT OF WILLIAM NELSON, NEWSPAPER CORRESPONDENT, GRAND JUNCTION, COLO.

Mr. NELSON. Mr. Chairman, my name is William Nelson, western Colorado editor of the Daily Sentinel, Grand Junction, Colo.

I have lived in Grand Junction all my life, been a member of the Daily Sentinel staff since 1935. Throughout that time I have covered water matters from the standpoint of the Bureau of Reclamation, the United States Geological Survey, and the United States Weather Bureau, and other Federal agencies.

This booklet was prepared, as stated, as a public service for western Colorado to help them comprehend and understand the water situation and the problems which they face regarding transmountain diversion.

Since I have entered the proceeding, I would like to make one very brief statement.

There has been a great deal of discussion here about how much water is available. Various figures have been quoted. The actual fact is it varies a great deal from year to year, and my position is that I oppose further transmountain diversions until the Colorado storage project, which you will hear more on a great deal later, becomes a reality.

When testimony is made on that project you will hear about how much water there is not in the river instead of how much there is.

The key to this booklet is that storage is essential to western Colorado. I might mention one other fact. The United States Geological Survey uncovered in Utah an interesting situation which proves the uncertainty of water. At a gaging station at the Colorado-

Utah line there was a certain amount of water last year. The gaging station at Cisco, an older gaging station, showed a depreciation in flow in only a few miles. I merely bring that up to show the fact that because a certain amount of water is in Colorado does not mean when it gets to Lee Ferry, where it is recorded for delivery to the lower basin, there is that much water. They are finding there is a great deal more loss than they anticipated the previous time.

The engineers have not been able to figure out what happens to that water. There are various theories.

I would just like to state again the Colorado storage project, with its storage dams, is essential to the future of Colorado, and I consider it should go ahead of any trans-mountain diversion.

Chairman MILLER. May I ask a question there?

Mr. HARRISON. Dr. Miller.

Chairman MILLER. Did an engineer assist in the preparation of this bulletin?

Mr. NELSON. No, sir.

Chairman MILLER. Where did you get the information that you have on page 8? Some of it has been corrected since it was placed in. Where did you get that information?

Mr. NELSON. That information was prepared by one of the leading water experts of the West, Silman Smith of Grand Junction, Colo., upon consulting various engineers.

Chairman MILLER. So you had some engineering consultants?

Mr. NELSON. He did, yes. I did not.

Chairman MILLER. I notice the figure there in item 5, Colorado's share of holdover reservoir shortage (we lose) of 106,475 acre-feet. Now someone has scratched that out and put in 414,000 acre-feet.

Mr. NELSON. That was a typographical error that in proofreading I did not catch, and I marked in the change.

Chairman MILLER. Well, I am not going to object to putting it in, although I do not think it adds anything to your record.

Mr. ASPINALL. Mr. Chairman, may I ask this? Would you, Mr. Nelson, be willing to make this your own statement for this committee?

Mr. NELSON. Yes, sir.

Mr. ASPINALL. I think that answers it.

Mr. HARRISON. Do you request it?

Mr. ASPINALL. I request unanimous consent.

Mr. HARRISON. It has been requested unanimous consent be given given for the introduction of this pamphlet in the record. Is there any objection?

Hearing none, it is so ordered.

(The pamphlet referred to is as follows:)

WESTERN COLORADO'S WATER SITUATION

Outline of a complicated, controversial problem vitally affecting the future of all river basin communities in the Centennial State

This pamphlet has been prepared as a public service by the Daily Sentinel for those interested in transmountain diversion. It is an effort by the Sentinel and its staff members, including William Nelson, slope editor, Walter Johnson, former staff member, and others to bring in outline form, problems existing today and as discussed by many and varied interests.

Many of the points are controversial—all are pertinent. Decisions of the next few months in Colorado will affect the future for generations.

Western Colorado's Water Situation

BASIC NONCONTROVERSIAL FACTS

1. More storage is necessary in western Colorado.

A. No further diversion is possible without replacement reservoirs.

B. Low flow of most western Colorado streams is overappropriated.

C. Even the Colorado River storage project will not eliminate need for storage near the snowfields.

(1) Principal storage aid of the giant reservoirs would be to catch flood runoff and permit upstream areas to use all the stream flow without worrying about delivery to Lee Ferry to meet compact commitments.

(2) Agricultural areas of western Colorado need storage above them because late summer flows are not sufficient to sustain further irrigation.

D. Senior water rights would force transmountain diversions to shut down in dry years if there are no storage reservoirs. But the trouble is that the river might be too low to provide water for the senior rights. Thus, replacement reservoirs are necessary for both slopes.

2. When the Colorado Conference Committee reports to the Colorado Water Conservation Board, the Bureau of Reclamation and the proponents of Blue-South Platte and Gunnison-Arkansas projects will consider that the signal to ask for further planning leading to authorization of those projects.

A. So far as transmountain diversionists are concerned, the study to be made by the Colorado Conference Committee will be the study. Regardless of whether or not western Colorado may be satisfied with the study and the recommendation, the diversionists will consider they are free from the 1951 resolution prohibiting further authorization until western Colorado needs are ascertained.

3. Senate Document 80, which is the contract between western Colorado and eastern Colorado interests concerning the Colorado-Big Thompson project, is in jeopardy.

A. Denver sought in the Summit County adjudication proceedings to destroy the principle of replacement for water taken through the Continental Divide.

(1) Despite the fact that the document was introduced as evidence, the court failed to give western Colorado a decree for Green Mountain Reservoir, the sole replacement reservoir built to date.

(2) Denver will continue to battle against Senate Document 80 in the Federal case to be tried in the court of Judge W. Lee Knous, probably starting next fall. Despite protestations of not wishing to injure western Colorado, Denver will fight the principle of replacement reservoirs in the Federal case.

(3) Denver has used every political trick possible to prevent the Federal case from coming to trial. Glen Saunders, Denver water attorney, even wrote a bill that was introduced into Congress that would possibly have prevented the case from coming to trial.

4. Senate Document 80 must be saved.

A. Without it, western Colorado has no protection from ruthless exploitation by eastern Colorado.

B. There are two legal battles in which the slope can save it: The appeals to the Colorado Supreme Court from the Summit County district court decisions and the Federal case.

(1) The Colorado River Water Conservation District must have aid in fighting these battles.

(2) Negotiation is possible as an alternative to trial.

SITUATIONS ABOUT WHICH THERE IS DOUBT OR CONTROVERSY

1. The Denver proposal to divert 177,000 acre-feet annually does 1 of 2 things: Kills the Blue-South Platte scheme of the Bureau of Reclamation or opens the door for the Bureau of Reclamation plan or a modification of it.

A. John Geoffrey (Jeff) Will, secretary and general counsel of the upper Colorado River Commission, argues that the Denver Blue-South Platte scheme would take so much water that the Bureau plan would not be feasible.

B. Frank Delaney, counsel of the Colorado River Water Conservation District, argues that Denver and the South Platte Water Users Association seeking the Bureau project are in cahoots behind the scenes.

(1) Reasoning in this viewpoint includes: Denver does not really hope nor intend to get interest-free money for a project separate from the Bureau of Reclamation. The current move is simply a false move. When it is prudent to admit publicly that interest-free money is impossible, Denver will say it has no alternative but to turn to the Bureau.

(2) The South Platte Water Users Association has appealed to the Colorado Supreme Court for a decree for 600,000 acre-feet of water.

(*a*) The brief of the association to the supreme court mentions in close association the proposed 23-mile Montezuma tunnel of the Denver plan and essential features of the Bureau Blue-South Platte plan. It also discusses the association "diligently working with the Bureau of Reclamation * * * to obtain the cooperation and assistance of that agency and its engineers looking toward the construction of a project with the city of Denver, the United States Government, and the association cooperating."

(*b*) An agreement between Denver and the association for joint use of the same facilities is also a part of the brief filed in the appeal to the Colorado Supreme Court. The agreement provides for ownership of facilities proportional to financial contributions and joint development of facilities.

(3) Regardless of which side is right, if Denver succeeds in getting water, western Colorado loses just that much high quality water. Even if Denver sincerely does not intend to include irrigation diversion, there is always a possibility that pressure over there would demand it. With facilities built, the temptation would be great.

2. Curecanti reservoir faces great odds in the labyrinth of Government bureaus and Congress. At best, its chances are possibly 1 in 5, maybe only 1 in 10.

A. Despite all the controversy and work, the small Curecanti is not a sound proposal.

(1) It does little for the holdover storage features of the storage project.

(2) With about half of the storage earmarked for Western Colorado use and possibly the other half marked for replacement for transmountain diversion of the Gunnison-Arkansas project, it has little left for holdover storage.

B. Western Colorado must work for it, but it would be common sense to plan for the future without it. Then if we get it, we are that much better off.

3. Gunnison-Arkansas project looms big on the horizon.

A. Despite efforts of Western Colorado to stall Gunnison-Arkansas by divorcing the Fryingpan-Arkansas from it and by other means, the Arkansas Valley is well organized and will not stop at the Fryingpany project

B. Gunnison-Arkansas will take between 500,000 acre feet and 800,000 acre-feet. Silmon Smith lists 590,000.

C. Is the Gunnison Valley prepared to face a minimum of water? If Curecanti falls by the way in the executive and legislative debates, and if Gunnison-Arkansas becomes a reality, what course will Gunnison Valley take? The time to make that decision is now because both "ifs" are not only possible, but probable.

4. All Western Colorado is involved.

A. Water lost from one stream must be made up from another to meet commitments to the lower basin.

(1) The Waite, Yampa, and Dolores Rivers may have to make up diversions from Colorado and Gunnison.

(*a*) Residents of these valleys have considered themselves diversion-proof in the past because of physical barriers to actual diversions. The Compact system removes the protection from diversion. While water may remain in those streams, if other streams are deficient, the White, Yampa, and Dolores will have to make up the deficiency.

5. No water is available for transmountain diversion if Western Colorado is to have any coal or oil shale synthetic fuels industries.

A. The Silmon Smith analysis of Colorado's share of the Colorado River is the best made by any person or agency to date. The table from his statement before President Truman's commission follows:

Analysis of Colorado's share of Colorado River and its use—Consumptive, present, and potential

		Acre-feet
1. Theoretical water for Upper Basin States		7, 500, 000
2. Alloted Arizona		50, 000
Available to Colorado, New Mexico, Utah, and Wyoming		7, 450, 000
3. Colorado's share of 51.75 percent		3, 855, 375
4. Colorado's share of Mexican treaty shortage (we lose)	106, 475	
5. Colorado's share of holdover reservoir shortage (we lose)	414, 000	
		520, 475
Total for Colorado use		3, 334, 900
6. Western Colorado's present use	1, 129, 000	
7. Eastern Colorado's present use	544, 000	
		1, 673, 000
Remaining for use of Colorado		1, 661, 900
POTENTIAL IRRIGATION—WESTERN COLORADO		
8. Gunnison River watershed	192, 000	
9. Colorado above Gunnison River watershed	150, 000	
10. San Juan-Dolores in Colorado	294, 305	
11. Yampa-White watershed	187, 620	
12. Little Snake watershed	72, 635	
		896, 560
Remaining after irrigation		765, 340
13. Western Colorado's potential municipal consumption		23, 000
Remaining for industrial use and evaporation		742, 340
14. Pulp and paper mill, Colorado River	3, 000	
15. Oil shale and related industries	300, 000	
16. Evaporation from use reservoirs	50, 000	
17. To provide for errors in irrigation estimates, plus synthetic fuel from coal, Atomic Energy Commission, and all other future industry in western Colorado [1]	389, 340	
		742, 340
Balance remaining for diversion		0
18. Colorado's share of possible salvage, inflow-outflow measure on historic use basis		37, 933
19. First phase Gunnison-Arkansas	68, 000	
20. Blue River-South Platte	430, 000	
21. Gunnison-Arkansas gravity diversion	590, 000	
22. Gunnison-Rio Grande diversion	20, 000	
23. Diversion reservoir evaporation	30, 000	
To be diverted from zero	1, 138, 000	

[1] Since the Smith report was compiled, water needs for a coal-to-oil synthetic fuels industry have been officially estimated at 1,000,000 acre-feet, nearly 3 times the amount reserved in miscellaneous industrial needs in sec. 17 of the Smith report. Tell Ertel, professor and part-time employee of Union Oil Co., stated in a speech at Denver last February that 1,000,000 acre-feet would be required for oil shale development in western Colorado.

B. If the planned diversions for 1,138,000 acre-feet of surplus water (which does not exist) proceed to construction, just which and what will be taken from western Colorado's development? Will eastern Colorado stop all irrigation development of the natural basin, which authorities admit is about one-half completed, in order to raise more sugar beets on the eastern slope prairies? Or will they take the water which will be required to develop the United States oil shale reserves and the world's greatest coal resources? These questions should be answered.

C. For Colorado to have 3,855,375 acre-feet of water, the Colorado River storage project must be built. If the project is not built, Colorado will have only 58 percent of its quota on a firm basis. This totals 2,236,117 acre-feet, only 562,217 acre-feet more than present Colorado uses.

6. Governor Thornton will be of no aid to western Colorado in fighting diversions.

A. As governor, he would argue he should not participate in intrastate squabbles. As candidate for Republican nomination for United States Senator in 1954, he would be seeking support from eastern Colorado, where the votes are.

7. Western Colorado efforts to prove Denver can get along with present water may fail.

A. Denver has its arguments well in hand, and western Colorado would have to work hard to upset their case for need for more water.

(1) Regardless of how valid western Colorado arguments are, the western slope must be prepared to face the situation in which Denver will be victorious on that score.

8. There is possibility of storage on the main stem of the Colorado above Grand Junction.

A. This is still in the investigation stage, and sites under consideration may prove either good or bad.

(1) Even if the sites prove satisfactory from engineering and economic points of view, opposition may arise on other angles.

(a) Some controversy is inevitable, and securing approval of any project involving moving highways, rail lines, and towns will have many obstacles.

9. If the Conference Committee tries to meet the 6-month deadline for completion of the survey of western Colorado water needs, the study may be incomplete.

A. This must be watched closely to be certain the report is adequate.

B. If it appears that the study is to be incomplete and inadequate, a demand for further study should be made before final decisions are handed down.

(1) If necessary, an intrastate compact with teeth to protect us until studies are complete should be sought. Possibly delays of 25 to 30 years on any further diversions (outlined in another part of this statement) will be essential.

C. Eastern Colorado regards the study now in progress as final. If the study is adequate, the decisions that will be made are long range. They would cover many decades of development effort and possibly hundreds of years of the economy of western Colorado. The decisions of this year and next may well cast the die for generations.

(1) The best possible data must be available for these decisions.

10. Retrenchment of Bureau of Reclamation activities will not mean that transmountain diversionists will slacken in their efforts. Rather, the diversionists will probably intensify efforts to be sure their projects are among the few that will be considered.

A. Lack of money will be no guaranty for lack of planning for transbasin diversion.

11. We must not think that more transmountain diversions are impossible.

A. A well-known authority states that in his opinion the study will show Denver diversion possible, B. of R. Blue-South Platte impossible, and only a small Gunnison-Arkansas possible.

(1) Regardless of what the study shows, eastern Colorado diversionists will naturally fight for the maximum.

(a) They might deny the study conclusions and try to go ahead.

WHAT WESTERN COLORADO MUST DO

1. Western Colorado must unite on a policy and all sections be prepared to support it.

2. Permanent conservancy districts must be strengthened both in financial and moral support.

3. Northwestern Colorado should be organized into a district.

4. Western Colorado must be prepared to do three things specifically concerning the current study:

A. Request that the Colorado Conference Committee hold at least one meeting in western Colorado for presentation of ideas, facts, and requests of citizens of the slope.

B. Request that the conference committee submit to a slope delegation representing various areas the basic parts of any recommendations it will make to the

Colorado Water Conservation Board in advance of the formal report to the State board.

C. Be prepared to go before the State board with any concurring or alternate proposals deemed necessary after the conference committee reports.

BASIC POLICY

A suggested basic policy is listed below for consideration. It is not presented as final nor as absolute. Additions, deletions, or alterations are welcomed. The key to western Colorado growth is storage to retain spring runoff. The principle of Senate Document 80 is for diversionists to provide replacement storage. If main stem storage becomes possible later, a reservoir built by Denver could be put to other beneficial uses. But we must get a reservoir.

1. Green Mountain Reservoir must be preserved intact. No federally or locally financed transmountain diversion project must interfere in any way with its operation as a replacement reservoir for the Colorado-Big Thompson project and for future developments of western Colorado. It must fill every year and no projects proposed by Denver nor the Bureau of Reclamation must hinder its functions.

Denver has fought compliance with the principle of replacement reservoirs as set forth in Senate Document 80, but western Colorado must demand that protection for the present and the future.

2. Demand and do not budge from the demand that Denver must agree to build a replacement reservoir of 100,000 acre-feet capacity above the junction of Eagle and Colorado Rivers for western Colorado before western Colorado will consider any Denver diversion.

3. Demand that Denver prove by a survey by a competent engineering firm not associated in any way with Denver that Denver needs further western Colorado water. Denver's word for this on a past performance basis is no good.

Population trend in the city, population trend in the trade territory, and other factors must be carefully analyzed. All of Denver's present water supplies must be analyzed by an independent agency.

Denver faces expenditure of possibly nearly $150 million to develop the water collection system it envisions. Cost of a replacement reservoir added to that would be small in proportion to the total it may spend anyway. The $150 million includes further facilities that must be built to utilize fully water now diverted through Moffat and Jones Pass tunnels and the Blue River project.

4. Western Colorado must have positive proof that a diversion of 177,000 acre-feet by Denver and Colorado Springs would not damage western Colorado's present uses and future potential.

The fact that western Colorado might have some surplus water in some of the tributaries of the Colorado River does not mean water can be safely diverted. The situation so far as Denver is concerned is whether or not water would be available without damage to the Colorado River Valley's agriculture, domestic uses, and oil shale and coal development. Surplus water on the Dolores or Yampa does not make possible further diversion from the Colorado main stem.

5. Demand that Denver withdraw request to be a part of the storage project. The project as planned does not provide for such a concurrent project. Make Denver seek authorization through other means.

6. Demand that the Colorado Water Conservation Board take a positive stand against any work by the Bureau of Reclamation on further plans for the Government Blue-Scuth Platte transmountain diversion project for a period of 25 years. Make the commission set a policy of opposing such a project for that period of time.

7. Request no further planning work be done on the Gunnison-Arkansas project for a period of 30 years.

8. Demand that Denver make every effort to conserve and fully utilize its present water supply.

9. Propose that the Colorado Water Conservation Board negotiate with the Department of Agriculture for experimental small reservoirs at the headwaters of creeks. At the risk of bringing the big versus little dams controversy into Colorado, this State should at least have some experimental small reservoirs which might help regulate streamflow.

10. Set aside some water for irrigation of meadows and pasture on public domain and national forests. This may be very important in coming years

Chairman MILLER. Mr. Chairman, I would like to revert to this telegram. May I read it?

Mr. HARRISON. Yes.

Chairman MILLER. So that this committee understands just what is in it. It is from the Lions Club.

Up to present neither State water board nor Bureau of Reclamation has ever discussed Fryingpan-Arkansas transmountain diversion project with this community or county where 90 percent of water to be diverted originated. Where opposition to project is virtually unanimous. We urge your committee repudiate these star chamber methods by insisting that decision as to authorization of project await results of Colorado State Water Survey scheduled for November 1 c mpletion. To do less would be to underwrite a reclamation policy based both on discrimination and ignorance of basic facts.

It is signed by Elbie L. Gann, president, Lions Club, Aspen, Colo.

I suppose the "star chamber methods" referred to are those taking place out in Colorado. [Laughter.]

Mr. ASPINALL. I offered it at this time because there has been testimony as to the matter before the committee and representatives have offered evidence that the telegram was not exactly correct.

Mr. HARRISON. Without objection, the telegram will be admitted in the record.

Mr. D'Ewart, have you a question?

Mr. D'EWART. I would like to ask my colleague from Colorado 1 or 2 questions that are not quite clear in my mind. Who built the Aspen Reservoir?

Mr. ASPINALL. The Aspen Reservoir has not been built. The Aspen Reservoir is a proposed reservoir in the Fryingpan-Arkansas project 2 miles above the town of Aspen, to be known as a compensatory reservoir to this project, at the expense of the people of the Arkansas Valley.

Mr. D'EWART. Somewhere I got the impression it was partly built.

Mr. ASPINALL. No, it has not even been started.

Mr. D'EWART. It has not even been started.

Mr. ASPINALL. There have been several surveys and the Bureau of Reclamation has finally agreed upon the present site as the most feasible site.

Mr. D'EWART. The purpose of it is to make some supplemental water available?

Mr. ASPINALL. To take care of water users with prior rights who will have the water taken away from them because of transmountain diversions.

Mr. HARRISON. I understand that Raymond Matthew, chief engineer of the Colorado River Board, Los Angeles, is here and would like to make a statement.

Mr. Matthew, come forward and we will be glad to hear you.

I understand Northcutt Ely, Chief Counsel for the Board wanted to be heard but is not in town today.

(Committee note: Mr. Ely subsequently submitted the following proposed amendments:)

AMENDMENTS PROPOSED BY THE COLORADO RIVER BOARD OF CALIFORNIA

PRESENTED BY NORTHCUTT ELY, SPECIAL COUNSEL

Six amendments are proposed to this bill. The first 4 are modeled on 4 amendments made, on the insistence of upper basin interests, to the bill which authorized the "second barrel" of the San Diego aqueduct (Public 171, 82d Cong., approved October 11, 1951), with necessary modifications. These subject the project to the compacts, statutes, and treaties which comprise part of the so-called law of the

River. If such amendments were necessary for the San Diego bill, they are necessary for this bill, which authorizes a larger project and foreshadows even greater water uses. To these has been added a declaration that Congress, by enacting this bill, does not interpret these documents. This is necessary because the Department of the Interior project report (S. Doc. 106, 82d Cong.), which is incorporated by reference, contains interpretations which are not agreed to by all the States of the Colorado River Basin.

The last two amendments:

1. Direct a survey by the Secretary of the Interior of the effect of transmountain diversions on the quality of water. California is concerned in this because article VIII of the Colorado River compact provides that "Present perfected rights to the beneficial use of waters of the Colorado River system are unimpaired by this compact," and the rights so protected necessarily involve quality as well as quantity of water. When the Colorado River compact was signed, Colorado's negotiator stated that transmountain diversions could never economically exceed 300,000 acre-feet per year. Now 3,000,000 acre-feet are proposed, including this small project.

2. Disclaim any implication that the United States, by passing this bill, commits itself to any enlarged transmountain diversion. This disclaimer is in line with the Interior Department's own recommendation in its report (S. Doc. 106, 82d Cong.).

AMENDMENT NO. 1

Page 2: Delete lines 4 through "(Treaty Series 994)" in line 8.

Page 2, line 18: Insert: "The use of all water diverted through said works from the Colorado River shall be subject to and controlled by the Colorado River compact, the upper Colorado River Basin compact, the Boulder Canyon Project Act, and the Mexican Water Treaty (Treaty Series 994), and shall be included within and shall in no way increase the total quantity of water to the use of which the State of Colorado is entitled and limited by said compacts, statute, and treaty."

AMENDMENT NO. 2

Page 3, following line 4: Add a new section. "SEC. 3. No construction shall be undertaken under the authority of this act and no funds shall be expended for the preparation of plans or specifications for any such construction unless and until the Secretary of the Interior has entered into a contract with the users of water therefrom which shall provide, among other things:

"(1) That the use of all water diverted through said works from the Colorado River system shall be subject to and controlled by the Colorado River compact, the upper Colorado River Basin compact, the Boulder Canyon Project Act, and the Mexican Water Treaty (Treaty Series 994) and shall be included within and shall in no way increase the total quantity of water to the use of which the State of Colorado is entitled and limited by said compacts, statute, and treaty.

"(2) That all of the waters of the Colorado River system exported from the natural basin of that system by means of works constructed hereunder, and extensions and enlargements of such works, to the drainage basin of the Arkansas River shall be consumptively used in the State of Colorado, and will not be made available by exchange, substitution, or use of return flow, or otherwise, for consumptive use in any State not a party to the Colorado River compact."

Page 3, line 5: Renumber Sec. 3 to read Sec. 4.

Page 3, line 14: Renumber Sec. 4 to read Sec. 5.

Page 3, line 20: Renumber Sec. 5 to read Sec. 6.

AMENDMENT NO. 3

Page 4, following line 20: Insert: "SEC. 7. The United States and the State of Colorado and their respective permittees, licensees, and contractees and all users and appropriators of water of the Colorado River system diverted or delivered through the works herein authorized and any enlargements or additions thereto shall observe and be subject to the Colorado River compact, the upper Colorado River compact, the Boulder Canyon Project Act, and the Mexican Water Treaty (Treaty Series 994) in the diversion, delivery, and use of water of the Colorado River system, and such condition and covenant shall attach as a matter of law whether or not set out or referred to in the instrument evidencing such permit, license, or contract and shall be deemed to be for the benefit of and be available to the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming and the users of water therein or thereunder by way of suit, defense, or

otherwise in any litigation respecting the waters of the Colorado River system; *Provided*, That the Congress does not, by the enactment of this Act, construe or interpret any provision of the Colorado River Compact, the Upper Colorado River Basin compact, the Boulder Canyon Project Act, or the Mexican Water Treaty, nor subject the United States to, nor approve nor disapprove, any interpretation of said compacts, statute or treaty, anything in this act to the contrary notwithstanding."

Page 4, line 21: Renumber Sec. 6 to read Sec. 8.

AMENDMENT NO. 4

Page 5, following line 4: Insert: "SEC. 9. This act and all works constructed hereunder shall be subject to and controlled by the Colorado River compact, proclaimed effective by the President June 25, 1929; the Boulder Canyon Project Act, approved December 21, 1928; the upper Colorado River Basin compact, to which the Congress gave consent (Public, 37, 81st Cong., approved April 6, 1949); and the Mexican Water Treaty (Treaty Series 994); and no right or claim of right to the use of the waters of the Colorado River System shall be aided or prejudiced hereby; *Provided*, That the Congress does not hereby interpret or construe said documents nor subject the United States to, nor approve nor disapprove, any interpretation or construction thereof."

AMENDMENT NO. 5

Page 5, following line 4: Insert: "SEC. 10. The Secretary of the Interior is directed to institute studies and to make a report to the Congress and to the States of the Colorado River Basin of the effect upon the quality of water available at Lee Ferry, of all transmountain diversions of water of the Colorado River system proposed to be made in the upper Colorado River Basin, including those proposed to be made under the authority of this act."

AMENDMENT NO. 6

Page 5, following line 4: "SEC. 11. Nothing in this act, by implication or otherwise, shall commit the United States to the further exportation of water from the Colorado River system."

Mr. SAYLOR. Mr. Chairman, before Mr. Matthew makes his statement. When Assistant Secretary Aandahl was here on the stand yesterday, you will recall that he and I had a conversation, and I stated I had submitted a letter to him requesting certain data with regard to the Fryingpan-Arkansas project.

The reason that I wrote that letter was that, after looking at Senate Document 106, I noticed that in the report to the Commissioner it is stated that certain State land agencies of the Government had submitted a report on this. So I asked Mr. Aandahl, in view of the fact that only the comments of the State of Colorado were a part of Senate Document 106, if were were any other reports or comments on this original bill, that they be submitted to me. I have just received the following comments:

Comments, Public Health Service, Federal Security Agency, August 16, 1951.

Comments, Federal Power Commission, August 22, 1951.

Comments, Department of Commerce, July 30, 1951.

Comments, Department of Agriculture, October 10, 1951.

Comments, Department of Agriculture, May 23, 1952.

Comments, Chief of Engineers, Department of the Army, September 26, 1951.

Comments, Wyoming Natural Resources Board, June 11, 1951.

Comments, Utah State Engineer, June 5, 1951.

Comments, Governor of Kansas, August 2, 1951.

Comments, Colorado Water Conservation Board, August 7, 1951.

Comments, California Department of Public Works, August 27, 1951.

Comments, Governor of Arizona, August 28, 1951.

Report of the Regional Director, Bureau of Reclamation, Revised February 23, 1951.

Proposed report of the Commissioner of Reclamation dated April 16, 1951, and approved by the Secretary, May 4, 1951.

Report of the Commissioner of Reclamation, dated September 11, 1951, and approved by the Secretary October 19, 1951.

Former Secretary Chapman's report to the President, October 19, 1951.

Secretary McKay's report to the President, through Bureau of Budget, April 30, 1953. (Committee note: Previously submitted for record. See p. 76.)

Letter of June 8, 1953, from True D. Morse, Acting Secretary, Department of Agriculture, to Joseph M. Dodge, Director, Bureau of the Budget.

I would ask that these be made a part of the official record and printed in the report.

Mr. D'EWART. Would the gentleman yield?

Mr. SAYLOR. I yield.

Mr. D'EWART. How do you go about getting reports like that?

Mr. SAYLOR. All you do is to write a letter to Secretary McKay and request copies of all the reports and pertinent communications on the Fryingpan-Arkansas project.

Mr. D'EWART. How long did it take you to do that?

Mr. SAYLOR. I wrote it on June 8 and got this on June 9.

Mr. D'EWART. Let me congratulate you.

Mr. HARRISON. Request for unanimous consent has been made that these be made a part of the record. Is there any objection?

If not, it is so ordered.

(The documents referred to are as follows:)

HOUSE OF REPRESENTATIVES,
Washington, D. C., June 8, 1953.

HONORABLE DOUGLAS MCKAY,
Secretary, Department of the Interior,
Washington 25, D. C.

DEAR MR. MCKAY: At the present time, the Subcommittee on Irrigation and Reclamation of the Interior and Insular Affairs Committee of the House is holding hearings on H. R. 236, a bill providing for the authorization of the construction, operation, and maintenance of the Fryingpan-Arkansas project.

In order that I may be fully informed of all phases of this proposed project, I would appreciate your furnishing me copies of all reports and pertinent communications on the project, and in particular the following data:

1. The oringinal project-planning report of the Bureau of Reclamation, complete with substantiating materials as approved and adopted by the former Secretary of the Interior on May 4, 1951;

2. The comments and views submitted by interested States and Federal departments and agencies, with respect to the original project-planning report;

3. The revised report, if any, on the proposed project, complete with supporting details; and,

4. The views and comments, if any, by interested States, and the Federal departments and agencies, with respect to the revised report.

In view of the fact that these hearings are already in progress, the above information is needed now and I would appreciate anything that can be done in expediting my request.

Sincerely,

JOHN P. SAYLOR.

FEDERAL SECURITY AGENCY,
PUBLIC HEALTH SERVICE,
Washington 25, D. C., August 16, 1951.

Hon. OSCAR L. CHAPMAN,
The Secretary of the Interior,
Washington 25, D. C.

DEAR MR. SECRETARY: Pursuant to the policies and procedures established by the Federal Inter-Agency River Basin Committee, we have reviewed the preliminary report furnished by your Department entitled "Initial Development (Roaring Fork Diversion) Gunnison-Arkansas Project, Colorado," dated January 1950.

Our comments, for the most part, consist of suggested revisions of statements concerning water pollution in the Arkansas River Valley. These revisions are based on more up-to-date data compiled in recent joint studies by the Public Health Service and the State of Colorado.

The following comments are made with page identification as carried in your report:

A. REPORT OF THE REGIONAL DIRECTOR:

(*1*) *Page 12, paragraph 36*

Suggest this paragraph be replaced in its entirety by the following:

"36. Stream pollution in the mountainous and primitive western slope diversion area presents no problem at the present time. However, stream pollution is of real significance in the eastern slope area. Diversion water from the western slope will alleviate this pollution somewhat, but the construction of adequate sewage and waste treatment plants will be necessary to make the pollution abatement complete."

B. SUBSTANTIATING REPORT:

(*1*) *Page 87 and 88, chapter XII*

Suggest this chapter be replaced in its entirety by the following:

"PRESENT CONDITIONS AND STREAM POLLUTION PROBLEMS

"No stream-pollution problems exist on the western slope diversion area, where transmountain water is to be obtained. However, the eastern area, which extends from the headwaters of the Arkansas River, near Leadville, to the Colorado-Kansas boundary, has a very definite stream-pollution problem.

"Almost at its inception, the Arkansas River is defiled by the uncontrolled discharge of municipal and industrial wastes at Leadville. Progressive deterioration of the river waters then continues to the Kansas line; serious pollution problems exist in a number of local areas.

"The sanitary requirements of water used for irrigation purposes have not been established; however, from available data, the need for pollution abatement of waters to be used for irrigation is apparent below Leadville, Pueblo, Rocky Ford, and other areas.

"Stream pollution is always a potential hazard to public water supplies. That this hazard exists for users of the Arkansas River water is exemplified by the problem of public-water-supply treatment at Pueblo. Its supply has only provisional approval as an interstate carrier watering point.

"BENEFITS

"The initial development would import transmountain water derived from melting snow on a heavily forested and practically uninhabited watershed. The water would be of excellent quality from a chemical and bacteriological standpoint. Its effect on the Arkansas River should prove beneficial from the standpoint of both quality and quantity, particularly during periods of low flow. Dilution of the highly mineralized river water and the stabilization of flow will be a boon to many uses, especially muncipal and industrial water supplies.

"The beneficial effects of the diversion water on pollution in the Arkansas River, however great, should not be considered a panacea for its entire water-pollution problem. Water-pollution abatement can only be accomplished by the concurrent installation of adequate sewage- and waste-treatment facilities at all significant sources of pollution."

(*2*) *Page 105, section titled "Public Health Service"*

Suggest the last three lines of this paragraph which read ". . . in order that those situations attributable to present practices and natural causes may not be

eventually cataloged as the end products of reclamation development." be changed to read: ". . . and will furnish criteria by which the benefits of the diversion project may be measured in the future."

Sincerely yours,

M. D. HOLLIS,
Chief Sanitary Engineering Officer, PHS FSA Member, Federal Inter-Agency River Basin Committee.

FEDERAL POWER COMMISSION,
Washington 25, D. C. August 22, 1951.

Subject: Initial Development, Roaring Fork Diversion, Gunnison-Arkansas Project, Colorado.

Mr. MICHAEL W. STRAUS,
Commissioner, Bureau of Reclamation,
Department of the Interior, Washington 25, D. C.

DEAR MR. STRAUS: The comments herein with respect to the proposed report of the Department of the Interior on the initial development, Roaring Fork diversion, of the Gunnison-Arkansas project, Colorado, are transmitted in response to your letter of May 8, 1951. The transmittal of these comments by the Commission is in accordance with the established procedures of the Federal Inter-Agency River Basin Committee.

The plan of development recommended in the proposed report provides for the importation of water from the Roaring Fork Basin of the Colorado River watershed into the upper Arkansas River Valley, and the regulation and use of both imported and native flows for supplemental irrigation, water supply, flood control, power development, and other purposes. The report states that although the proposed plan is designed as a self-contained unit, it could constitute the initial stage of a much larger project involving the future diversion of water supplies from the Gunnison River in the Colorado Basin to the Arkansas River Basin.

As described in the report, the recommended development would consist of a system of canals and tunnels on the western slope to collect water for diversion, and the proposed Aspen Reservoir on the Roaring Fork River to provide replacement water; a tunnel under the Continental Divide to convey water to the Sugar Loaf Reservoir which would be enlarged; a canal extending from the Sugar Loaf Reservoir to the Albert powerplant to be constructed at the head of the enlarged Twin Lakes Reservoir, and also a canal diverting water from the Arkansas River into the larger Twin Lakes Reservoir; a canal extending from the Twin Lakes Reservoir to Salida, Colorado, to provide for the development of power at plants to be constructed at power drops at the Granite, Wapaco, Princeton, Johnson, and Salida sites; a reservoir and powerplant located on the Arkansas River immediately upstream from Pueblo, Colo.; a power transmission network; and facilities for furnishing additional municipal water supply for certain cities and towns in the Arkansas River Basin.

The report shows that by diverting 69,200 acre-feet of water annually from the Colorado River Basin and through regulation and conservation of native flows, the plan would provide a total of about 185,000 acre-feet of supplemental irrigation water per year for use on the 322,000 acres of irrigated land in the Arkansas Valley. This would reduce the average annual water shortage on these lands from the 35 percent now experienced to about 15 percent. The 7 powerplants in the plan would have a total installed capacity of 104,800 kilowatts, of which 93,800 kilowatts would be considered dependable. The estimated average annual generation at the plants is shown as 505 million kilowatt-hours, including 400 million kilowatt-hours of primary energy. The plan would provide about 17,000 acre-feet of water annually for municipal supply to Colorado Springs, Pueblo, and several Arkansas Valley towns. It was estimated that operation of the reservoirs would eliminate two-thirds of the annual flood damages in the reach of river between the proposed Pueblo Reservoir and the existing John Martin Reservoir. Other benefits would include sediment control, pollution abatement, and fish and wildlife conservation.

The cost of the proposed development is estimated at $147,440,000 on the basis of October 1949 prices. Under the tentative cost allocation proposed, $59,930,000 would be charged to irrigation; $40,032,000 to power; $29,522,000 to municipal and industrial water supply; $15,777,000 to flood control; and $2,179,000 to fish and wildlife. The last two items named would be considered

as nonreimbursable. Of the amount allocated to irrigation, $10,881,600 would be repaid by the irrigators, $35,478,000 would be returned through use of the interest component on power revenues, and $13,570,400 returned through use of the interest component of municipal and industrial water supply revenues. A payout period of 50 years is contemplated in the report.

In the benefit-cost analysis given in the report, the annual cost of the development is estimated at $5,568,000 on the basis of 2.5 percent interest rate and 100-year amortization period. The total average annual benefits are estimated at $9,789,000, indicating a benefit-cost ratio of 1.76 to 1.00. It is stated in the report that the direct benefits, estimated at $6,262,000 annually, would be sufficient to justify the annual project costs.

It is noted that the annual power benefits are estimated in the report at $4,064,000. This includes $2,375,000 estimated revenues from the sale of energy at 5.5 mills per kilowatt-hour of firm energy and 3.5 mills per kilowatt-hour of secondary energy; $327,000 in savings in production costs to utilities purchasing project power for resale (assumed to be passed on to the consumers); $1,199,000 as a proportionate share of the retailing utilities, benefits arising from resale of project power; and $163,000 as a proportionate share of the increased value of goods and services produced by final utilization of the power. The report considers the first tiem as the direct power benefit and the three remaining items as indirect benefits.

The Commission believes that the inclusion of at least some of the indirect benefits listed above in the project justification is questionable. On the basis that the power has a value equal to the cost of production by alternative steam-electric plants, the Commission staff estimates the annual power benefits of the development at approximately $3,400,000. The staff reports, however, that the project power benefits, both as estimated in the report and as computed by the staff, are substantially in excess of the annual power costs, assuming adoption of the proposed cost allocation and also using a 2.5 percent interest rate and a 50-year amortization period.

Using the power benefits as computed by the Commission staff and the direct benefits for other functions as given in the report, the staff finds that the total of these benefits would exceed the annual costs, computed on the basis of 2.5 percent interest rate and 50-year amortization period. It appears, therefore, that as stated in the report the overall development would be justified by the direct benefits.

As indicated above, 82 percent of the cost of the development chargeable to irrigation would be repaid through use of the interest component of the revenues from the sale of power and municipal water supplies. The Commission is familiar with the interpretations under which such procedures have been adopted by your Department. It believes, however, that the interest portion of power revenues represents a power cost that should be paid into the Federal Treasury rather than diverted for use as irrigation subsidy.

The Commission staff has made studies of the proposed development both during the time of project formulation and in review of the subject report of your Department. The staff reports that its estimates of the power available at the project are in substantial agreement with the estimates of your office. The staff also advises that its studies confirm the conclusion of the report that there would be a market for the project power by about 1960.

Consideration has been given by the staff to certain modifications of the plan, all of relatively minor nature, which may prove desirable from the standpoint of power development. The report also recognizes that further investigations may show the desirability of altering some of the project details. For example, it is stated in the report that further study may show that it is more economical to develop the Elbert power head in two steps, each utilizing about one-half of the 515 feet of available head. A second alternative plan for this project studied by the staff would provide a pond on Corske Creek to serve as an afterbay for an upper plant utilizing about 125 feet of head, and to act as a forebay for a power plant at the Elbert site developing the remainder of the head. Such a plan would not only provide for greater flexibility of operation but also would permit a larger power installation at the Elbert plant for low load factor operation.

The staff points out that it would be desirable also to provide forebays for the Granite and Wapaco powerplants if topographic conditions are suitable for the construction of such facilities. It is noted that the plans include forebays for the three lower plants on the Arkansas power canals, namely, the Princeton, Johnson, and Salida plants. In view of the large storage capacity to be provided above and below the Granite plant, the staff believes that it would be desirable to in-

crease the ultimate installation at that plant from the 19,200 kilowatts proposed to approximately 40,000 kilowatts for peaking purposes.

The staff studies indicate that it may be desirable to develop a small amount of power at the Aspen Dam for project operation and for possible use on a small local load. On the basis of the proposed operation of the reservoir, it appears that an installation of approximately 500 kilowatts might be warranted.

It is noted that the report considers that the power capacity at the Pueblo Dam would not be dependable because of the possible lack of sufficient head and flow for power development during winter peak load months. The staff suggests that a part of the capacity might be made dependable by maintaining a dependable power head at maximum drawdown through tailrace excavation or otherwise, and by effecting agreements whereby winter releases could be stored in downstream reservoirs such as John Martin.

The proposed plans do not provide for the development for power of the 2,400 feet of fall in the 70-mile reach of the Arkansas River between Salida and the Pueblo Reservoir. Studies by the staff indicate that on the basis of the water available under the recommended plans, a dependable capacity of about 89,000 kilowatts and an average annual generation of approximately 470 million kilowatt-hours could be developed in this section of the river. The staff advises that such development would not be economically feasible at the present time but that the proposed plans for initial development as outlined in your report would not interfere with the future development of this power.

The Commission appreciates the opportunity of reviewing and commenting upon the report of your Department.

Sincerely yours,

MON C. WALLGREN, *Chairman.*

UNITED STATES DEPARTMENT OF COMMERCE,
BUREAU OF FOREIGN AND DOMESTIC COMMERCE,
OFFICE OF INDUSTRY AND COMMERCE,
Washington 25, D. C., July 30, 1951.

MR. MICHAEL E. STRAUS,
Commissioner, Bureau of Reclamation, Department of the Interior,
Washington 25, D. C.

DEAR MR. STRAUS: We have several comments on the proposed report of the Department of the Interior on the initial development (Roaring Fork diversion), Gunnison-Arkansas project.

INTEREST ON RETURN PAYMENTS FROM POWER

We have a question concerning paragraph 69 of page 65 of the report of the regional director, which reads: "Parts of the interest on return payments from power (3 percent) and municipal water (2 percent) would be applied to the irrigation investment."

Two important questions of policy are raised by this proposal. Ordinarily, return payments from power and municipal water would be returned to the National Treasury, from where they would be eligible for appropriation to any region and any purpose the Congress saw fit. The report's proposal would automatically appropriate these funds to this area and to the particular purpose of irrigation.

In our view such an important point of policy should be considered independently of a project.

HIGHWAY RELOCATION

The information in the report as to highway inundation and relocation is brief and very little factual data are presented. While more study would be necessary before final estimates of cost of highway relocation could be given, it appears that the Bureau of Reclamation estimates for land and rights may be adequate for highway relocations in the vicinity of the Aspen Reservoir, the Sugar Loaf Reservoir enlargement, and the Pueblo Reservoir enlargement. The cost of highway relocations at these 3 projects is estimated to represent approximately 15 percent, 65 precent, and 50 percent, respectively, of the cost of land and rights.

However, in the case of the Twin Lakes Reservoir enlargement project, the cost of highway relocation would appear to be several times the Bureau's estimated cost of land and rights.

HYDROLOGIC DATA

In 1948 the FIARBC Subcommittee on Hydrology recommended that additional evaporation, precipitation, and other meteorological stations be established in the vicinity of the project area. Perhaps it would be well for the Bureau of Reclamation to acknowledge the need for additional data of the above type in the present report.

CONTROL SURVEYS

In the substantiating report section of this study the planners make certain recommendations regarding needed surveys and maps. In this connection, the Coast and Geodetic Survey is now extending the basic (first and second order) horizontal and vertical control in that area. This control is used by the Geological Survey and other mapping and engineering agencies as the basic framework for detailed topographic mapping and other engineering surveys.

Sincerely yours,

H. B. McCoy, *Director.*

DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, October 10, 1951.

The Honorable The SECRETARY OF THE INTERIOR.

DEAR MR. SECRETARY: In his letter of May 8, 1951, the Commissioner of Reclamation, acting in your behalf, requested comments upon a proposed report entitled "Initial Development, Gunnison-Arkansas Project." This report was referred to all of the interested agencies of this Department and has been reviewed by experts in soils, agricultural economics, engineering, soil and water conservation, agronomics, and irrigation practices. The following comments are based upon this technical review.

It appears from our analysis that the irrigation segment of the proposed miltiple purpose undertaking actually consists of two distinct phases. One of these is aimed at making more effective use of the water supply already available in the upper Arkansas Basin. The other is designed to increases this supply by importation of water from the Colorado River Basin.

In our opinion the former is more important than the latter. According to the report, less than half of the water now passing the headgates of the irrigation works is actually applied to farm fields. Moreover, some of the floodwaters are lost and winter diversions are excessive. Clearly there is a need for a full-scale program designed to reduce water wastage, to improve irrigation systems and practices and to capture more Arkansas River floodwater. Parts of such a program are proposed in the report. But there is little indication of how some of the contemplated measures would be put into effect. It seems to us that this phase of the irrigation plan should be considerably expanded. This could easily be accomplished through the interagency planning effort now underway in the Arkansas-White-Red River Basins. This leads us to suggest that the proposed project be made an integral part of the comprehensive plan which will result from that effort, and that in the process the provisions for making more effective use of the available water be extended and strengthened. We are calling this to the attention of our representative on the interagency committee for the region and are asking him to cooperate to the fullest possible extent in all efforts to more fully meet the needs of the irrigation enterprises of the upper Arkansas River Basin.

It is also suggested that this phase of the irrigation plan be evaluated separately. It should, we believe, be considered the basic irrigation program for the area. The proposal to import water should be considered as an additional increment and evaluated as such.

All segments of the proposed multiple-purpose program are combined for purposes of economic evaluation. Hence it is not possible to determine, from the data given in the report, the possible effects of the separate evaluations suggested. We note, however, that the cost of the combined irrigation program would exceed $65,000 per farm (if the additional water made available is applied to 921 farms, as assumed in the calculation of benefits), or roughly $500 per irrigated acre. This high cost is, we assume, largely due to the importation feature of the combination. When such costly measures are required every possible alternative solution should be given thorough consideration.

All other separable segments of the multiple-purpose program should, of course, also be separately evaluated. We would suggest that in making these evaluations

the Bureau of Reclamation utilize the procedures recommended by the subcommittee on benefits and costs of the Federal Interagency River Basin Committee. As the principles proposed by the subcommittee have been adopted by this Department their use would make it possible for us to concur in your conclusions as to the economic feasibility of the various segments of the plan.

If it should be considered necessary to proceed with the project in advance of completion of the comprehensive plan for the Arkansas-White-Red region, we would suggest:

1. That the means by which it is intended to bring about more effective use of water now available be more fully explained and provided for, and that, at the very least, the contemplated conversion of winter flow be made a condition of Federal participation.

2. That definite provisions be made for the replacement of any national forest facilities or services that may be impaired by the project, and for protection of the Maroon-Snowmass primitive area against invasion. As it would be impossible to replace this primitive area, or to repair any damage that it might suffer, the only way to preserve its unique public value is to make certain that it is not affected by the project.

3. That provisions be made for the protection of any potentialities that may exist for economically justified small-scale irrigation at higher altitudes on both sides of the Continental Divide; in particular for the irrigation of pastures and meadows where needed to insure a balanced grazing program.

We greatly appreciate the opportunity afforded us to review this report.

Sincerely,

CHARLES F. BRANNAN, *Secretary.*

DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, May 23, 1952.

The Honorable The SECRETARY OF THE INTERIOR.

DEAR MR. SECRETARY: In his letter of May 8, 1951, the Commissioner of Reclamation, acting in your behalf, requested comments upon a proposed report entitled "Initial Development, Gunnison-Arkansas Project."

It appears that the irrigation segment of the proposed multiple-purpose undertaking consists of two distinct phases. One of these is aimed at making more effective use of the water supply already available in the upper Arkansas Basin. The other is designed to increase this supply by importation of water from the Colorado River Basin. It is noted that the costs and benefits of these two phases are combined for purposes of economic evaluation. This is not in accord with the basic principles of evaluation set out in the May 1950 report of the Subcommittee on Benefits and Costs of the Federal Interagency River Basin Committee. We believe that to bring your report into line with these principles it should present the benefits and costs of all separable increments of the proposed project, and should show that each such increment is more economical than any feasible alternative. It seems particularly important, in view of the obviously high cost of importing water from the Colorado River Basin, that a separate evaluation be made of the use of such water for irrigation.

We assume that provisions will be made for replacement of any national forest facilities that may be impaired by the proposed project.

The opportunity afforded us to review this report is appreciated.

Sincerely,

CHARLES F. BRANNAN, *Secretary.*

DEPARTMENT OF THE ARMY,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, September 26, 1951.

Hon. MICHAEL W. STRAUS,
Commissioner of Reclamation, Bureau of Reclamation,
Department of the Interior, Washington, D. C.

DEAR MR. STRAUS: Reference is made to your letters of May 8, 1951, to the Secretary of the Army and to the Chief of Engineers, inclosing copies of your report dated January 1950 on the initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado, for the information and comments of

the Department of the Army, in accordance with section 1 of the Flood Control Act of 1944. I have been directed by the Secretary of the Army to furnish you the views of the Department of the Army on your report. You state in your letter to the Secretary of the Army that your report will be sent to the President and to the Congress under provisions of section 9 (a) of the Reclamation Project Act of 1939.

Your report recommends approval of a multiple-purpose, initial-development plan, based on transmountain diversion of water from the Colorado River Basin eastward to the Arkansas River Basin for irrigation, hydroelectric power, municipal water supply, flood and sediment control, stream-pollution abatement, and fish and wildlife conservation. The plan, estimated for a 10-year construction period and a total cost of $147,440,000 based on 1949 prices, comprises about 50 miles of canals and tunnels and a water-replacement reservoir on the western slope of the Continental Divide; 6 miles of transmountain diversion tunnel; and on the eastern slope 3 earth-fill dams, 60 miles of power canal, 10 miles of diversion tunnel, 7 hydroelectric power plants with a total installed capacity of 104,800 kilowatts, 400 miles of transmission line, and a municipal water-supply system. Water imported to the Arkansas River Basin from the Colorado River Basin is to come out of Colorado's apportionment under the upper Colorado River compact of October 11, 1948.

Of the $147,400,000 total estimated cost (based on 1949 prices) of the recommended plan, $59,930,000 is allocated to irrigation, $40,032,000 to power, $29,522,000 to municipal water supply, $15,777,000 to flood control, and $2,179,000 to fish and wildlife conservation. The annual charges over a 100-year period with interest at 2.5 percent are estimated at $5,568,000. Your report estimates the annual benefits at $9,789,000 consisting of $3,339,000 from irrigation, $4,064,000 from power, $1,662,000 from municipal water supply, $583,000 from flood control, and $141,000 from sediment control. The benefit-cost ratio is estimated at 1.76 to 1. It is further estimated that the costs allocated to irrigation, power, and municipal water supply ($129,484,000) probably can be returned to the United States as follows: Irrigation, 40 years without interest by payment of $10,881,000 by the irrigators and application of $49,084,000 (82 percent) interest on power and municipal water investments; power, 50 years with interest at 3 percent, $40,032,000 and municipal water supply, 40 years with interest at 2 percent, $29,522,000. The use of an interest component on power investments and also on investments for municipal water supply to repay irrigation costs is a matter which should receive the most careful consideration by Congress. In this connection, your attention is invited to the letter of February 1, 1950, from the Director of the Bureau of the Budget to the Secretary of of the Interior, commenting on your Columbia River Basin report (printed in H. Doc. No. 473, 81st Cong., 2d Sess.), in which it is stated "* * * in setting rates for the sale of power, the Secretary may consider the application of inverest on the power investment, from the various projects covered by the accouut, to the return of nonpower costs, only to the extent that he can do so under reclamation law—existing or as hereafter amended. As you know, this is one of the matters on which recommendations are expected from the President's Water Resources Policy Commission."

Your report states that the designs and estimates are based on preliminary information and cites the necessity for additional studies and detailed surveys for preparation of the definitive plan. Owing to the effect of Pueblo Dam on the downstream Corps of Engineers' John Martin Dam and Reservoir, it is requested that this office be afforded the privilege of further review of certain features of the project upon completion of definite plans.

You state in your report that the initial development (Roaring Fork diversion) is designed as a self-contained unit, and that its construction would not imply a commitment for developing future water supplies in the Guninson River Basin for diversion to the Arkansas River Basin.

It is noted with respect to the economic justification of the project that the sum of the direct irrigation benefits to farmers, direct power benefits, and benefits to municipal water, ffood control, and sediment control (totaling $5,826,000) is sufficient to justify the annual project cost of $5,558,000. Since the project is justified on the basis of direct benefits, the question of the use of secondary benefits does not arise with respect to the matter of economic justification.

Although the report does specifically state a policy for operation of the 93,000 acre-feet of storage capacity in Pueblo Reservoir that is allocated to flood-control purposes, it is assumed that the operation will be in accordance with regulations to be concurred in by the Secretary of the Army as specified under section 7 of

the Flood Control Act of December 22, 1944, and that such regulations will be formulated to assure optimum flood-control benefits from the flood-control-storage allocation. With respect to the nonreimbursable flood-control allocation of $15,777,000 which was obtained by capitalizing the annual flood-control benefits of $583,000, it is noted that according to page 94 of the appendix containing the substantiating material, this amount is stated to be arrived at on the basis of Department of the Army policy which provides for capitalization of benefits at 3-percent interest for a 50-year period of analysis. This is not correct. Although this method has been used in some cases, particularly where the overall project justification is close to unity, its use in a project with a relatively high benefit-cost ratio means that flood control is bearing more than its proper share of the cost of the project. It is our belief that all project purposes should share in the savings due to multiple-purpose development.

It is considered essential that this study, and any future studies that propose importation of additional water into the drainage basin of the Arkansas River, be thoroughly coordinated with the authorized study of the Arkansas-White-Red River Basins. Region 7 of the Bureau of Reclamation is to be commended for its program of coordination of planning with other Federal and State agencies in the early phases of investigation for this report.

The proposed project does not appear to conflict functionally with any project or plans of the Corps of Engineers, but the privilege of further review of certain features of the project upon completion of definite plans is requested.

The opportunity to review your report on the initial development, Gunnison-Arkansas project, Roaring Fork diversion, is appreciated.

Sincerely yours,

LEWIS A. PICK,
Lieutenant General, Chief of Engineers.

STATE OF WYOMING,
WYOMING NATURAL RESOURCE BOARD,
Cheyenne, June 11, 1951.

Mr. MICHAEL W. STRAUS,
Commissioner, United States Bureau of Reclamation,
Washington, D. C.

DEAR MR. STRAUS: This will acknowledge receipt of your letter of May 8, 1951, and accompanying report of the Bureau of Reclamation on the Gunnison-Arkansas project, Roaring Fork Diversion, Colorado.

Agreeable to your request I have reviewed the above-captioned report and offer comments thereon as follows:

1. The project appears to be feasible inasmuch as it is estimated to provide benefits of approximately one and three fourths times the cost.

2. That the water proposed to be diverted from the Colorado River watershed is well within the allocation of Colorado under the terms of the upper Colorado River compact.

In view of the foregoing I can see no reason why Wyoming should oppose construction of the Gunnison-Arkansas project as proposed in the report of the Bureau of Reclamation dated January 1950.

Respectfully submitted.

L. C. BISHOP,
Director, Wyoming Natural Resource Board.
J. ELMER BROCK,
President, Wyoming Natural Resource Board.

THE STATE OF UTAH,
OFFICE OF STATE ENGINEER,
Salt Lake City, June 5, 1951.

Re: Gunnison-Arkansas project, project planning report No. 7-8a.49-1, January 1950.

SECRETARY OF THE INTERIOR,
Department of the Interior, Bureau of Reclamation,
Washington 25, D. C.
(Attention Michael Straus, Commissioner.)

DEAR SIR: This will acknowledge receipt of your letter dated May 8, 1951, and two copies of the Department of the Interior's proposed report on the initial

development (Roaring Fork diversion), Gunnison-Arkansas project, identified as project planning report No. 7–8a.49–1, January 1950.

Pursuant to your request for views and recommendations, will state that Utah makes no adverse recommendations or comments with respect to the approval, authorization or construction of this project.

Sincerely yours,

JOSEPH M. TRACY, *State Engineer.*

STATE of KANSAS,
OFFICE of the GOVERNOR,
Topeka, August 2, 1951.

Hon. OSCAR L. CHAPMAN,
Secretary of the Interior,
Department of the Interior,
Washington, D. C.

DEAR MR. SECRETARY: Enclosed herewith is a resolution adopted by the Colorado-Kansas-Arkansas River Compact Administration. As attorney general of Kansas, I served on the compact commission of these two States which drafted a workable compact now being successfully administered by the present compact administration composed of representatives of both States and Gen. Hans Kramer as a representative of the United States.

That administrative agency, by the enclosed resolution, presents its recommendations. As Governor of Kansas I have also received the recommendations of my special advisory committee, and they are in accord with the enclosed resolution, as are my personal convictions resulting from my own knowledge of and experience with the overall Arkansas River project.

Kansas has no objection to the development of the proposed Gunnison-Arkansas project as set forth in project planning report No. 7–8A, 49–1 of the Bureau of Reclamation. However, we in Kansas would oppose any attempt for this development to interfere with the rights, interests, and obligations of Colorado or Kansas under their Arkansas River compact.

That is to say, we in Kansas would object only to any reregulation of native waters of the Arkansas River Basin until such time as it could be definitely determined that reregulation of native waters would not be detrimental to Kansas or to interstate water relations between Kansas and Colorado.

We assume, of course, that no such attempt at reregulation would be made or desired without a meeting of the two States and the United States after the completion of the project.

Sincerely,

EDWARD F. ARN, *Governor.*

RESOLUTION

Whereas there has been submitted to the States of Colorado and Kansas by the Secretary of the Interior, in accordance with the provisions of section 1 of the 1944 Flood Control Act, a report of the Bureau of Reclamation on the proposed initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado (project planning report No. 7–8A, 49–1) and such States are required to transmit to the Secretary of the Interior their respective official comments and recommendations on the report and proposed development; and

Whereas the Arkansas River Compact Administration, an official interstate body created by the Arkansas River compact charged ith the administration of such compact, is interested in the proposed development to the extent that its construction and operation shall not interfere with the rights, interests, and obligations of Colorado and Kansas under the compact; Now be it

Resolved by the Arkansas River Compact Administration that the following comments and recommendations relating to said report of the Secretary of the Interior, to wit:

The Arkansas River Compact Administration submits these comments and recommendations to the Governors of Colorado and Kansas respecting the proposed initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado, namely:

1. The administration understands that the project plan proposes:

(*a*) The importation by appropriate project works of approximately 70,000 acre-feet of water a year from the Colorado River Basin to the Arkansas River

Basin for supplemental irrigation and domestic water supplies in Colorado and for the production of hydroelectric energy.

(*b*) In connection with such importation of water and its regulation in the Arkansas River Valley by project works, the reregulation of native waters of the Arkansas River (the term "native waters," as herein used, being those waters covered and defined by article 111–B of the Arkansas River compact).

2. The interstate water relations of Colorado and Kansas with respect to the Arkansas River do not justify any objection to the proposed project development for the importation of Colorado River water (described in subparagraph (*a*) above).

3. The reregulation of native waters of the Arkansas River (native waters being as above mentioned) concerns the Arkansas River Compact Administration and both Colorado and Kansas in complying with the provisions of the Arkansas River compact and maintaining the benefits and obligations of the two States under that compact. To that end, it is recommended to the Governors of Colorado and Kansas, and expressed as a policy of the Arkansas River Compact Administration, that the initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado, as set forth in project planning report No. 7–8a, 49–1 of the Bureau of Reclamation, be approved; provided, however, that there shall be no reregulation of native waters of the Arkansas River as proposed in such report until a plan of operation, rules, regulations, procedures and agreements in furtherance thereof, including any pertinent agreements between the Corps of Engineers and the Bureau of Reclamation, shall have been submitted to, and approved by, the Arkansas River Compact Administration and the affected water users.

4. It is the purpose and intent of these recommendations that the proposed project development shall not interfere with or defeat the rights, interests, and obligations of Colorado and Kansas under the Arkansas River compact.

be transmitted to the Governors of the States of Colorado and Kansas and such Governors be and are hereby requested to submit the same to the Secretary of Interior with their official State comments and recommendations upon said proposed project and development.

The foregoing is a true and correct copy of the resolution adopted by the Arkansas River Compact Administration at its meeting of July 24, 1951, at Lamar, Colo.

HARRY C. NEVIUS, *Secretary.*

OFFICIAL COMMENTS AND RECOMMENDATIONS OF THE STATE OF COLORADO ON THE INITIAL DEVELOPMENT, GUNNISON-ARKANSAS PROJECT, ROARING FORK DIVERSION, COLORADO

(Project planning report No. 7–8a.49–1, Bureau of Reclamation, Department of the Interior, dated January 1950)

AUGUST 7, 1951.

The SECRETARY OF THE INTERIOR.

SIR: On behalf of the State of Colorado and pursuant to section 1 of the act of December 17, 1944 (58 Stat. 887), there are herewith transmitted the comments, views and recommendations of the State of Colorado concerning the initial development of the Gunnison-Arkansas project, Roaring Fork diversion, being project planning report No. 7–8a.49–1, Bureau of Reclamation, Department of the Interior, dated January 1950.

These comments, views and recommendations are submitted under the authority of chapter 265, Session Laws of Colorado, 1937, creating the Colorado Water Conservation Board, and defining its functions in accordance with the designation of such board by the Governor of the State of Colorado pursuant to section 1 of the act of December 17, 1944 (58 Stat. 887) as the official State agency to act in such matters.

The comments, views and recommendations of Colorado submitted herewith are as follows:

1. Colorado recognizes that the waters of the Arkansas River in the Colorado portion of the upper Arkansas River Basin are overappropriated and that serious loss in crop production on presently irrigated farmland results. Stabilized agricultural economy in the area requires supplemental water supplies. Additional quantity and better quality of domestic and municipal water are critically needed in the Arkansas Valley, Colo., for the cities of Colorado Springs, Pueblo, and various valley towns. New sources must be found if necessary and dependable water supplies for a growing population are to be provided. The best

economy and the most efficient use of limited sources of water require multiple-use project development which will serve the needs of agriculture, requirements for domestic and municipal water supplies, flood control, the preservation of recreational and fish and wildlife values and the production of hydroelectric power. Neither further retirement of presently irrigated land to meet necessary and pressing municipal requirements for water nor project development designed to serve a single purpose would be consonant with the most desirable economic advancement of Colorado, or with the highest utilization of its limited water supplies.

2. Colorado concurs in the findings of the project report that the project described therein is engineeringly feasible, economically justified, and financially feasible, and that the proposed plan for the payment of reimbursable capital costs is in accordance with the Federal reclamation law.

3. The allocation of capital costs as between the various project features, including a nonreimbursable allocation to flood control and fish and wildlife preservation, is considered reasonable.

4. It is recognized that the allocation to the various project purposes of annual operation, maintenance and replacement costs has been made to correspond to the allocation of capital costs. Colorado recommends that an authorization of the project shall not preclude a readjustment of operation, maintenance and replacement charges as between municipal and domestic users and power and irrigation users which might more accurately reflect the actual use of water by said users.

5. It is also recommended that the authorization of the project include the valley pipe line as referred to in said report for the use and benefit of the various valley towns.

6. Colorado calls attention to the fact that the project, its operation, maintenance and the use of Colorado River water thereunder, must be subject to the provisions of the Colorado River compact of November 24, 1922 (H. Doc. 605, 67th Cong., 4th sess.), the upper Colorado River Basin compact of October 11, 1948 (Public Law 37, 81st Cong., 1st sess.), and the Boulder Canyon Project Act of December 21, 1928 (45 Stat. 1057–1064). Further reference to this matter appears in these comments in connection with the subject of "Operating Principles." The features of the project and their operation for the storage and reregulation of the native waters of the Arkansas River are subject to the provisions of the Arkansas River compact of December 14, 1948 (Public Law 82, 81st Cong., 1st sess.), between Colorado and Kansas. On July 24, 1951, the Arkansas River Compact Administration, an agency created by the compact for its administration, after a review of the project report and consideration of the effect of the operation of the proposed project on the administration of the provisions of the compact, adopted the following resolution:

"Whereas there has been submitted to the States of Colorado and Kansas by the Secretary of the Interior, in accordance with provisions of section 1 of the 1944 Flood Control Act, a report of the Bureau of Reclamation on the proposed initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado (project planning report No. 7–8a.49–a) and such States are required to transmit to the Secretary of the Interior their respective official comments and recommendations on the report and proposed development; and

"Whereas the Arkansas River Compact Administration, an official interstate body created by the Arkansas River compact and charged with the administration of such compact, is interested in the proposed development to the extent that its construction and operation shall not interfere with the rights, interests and obligations of Colorado and Kansas under the compact: Now be it

Resolved by the Arkansas River Compact Administration, That the following comments and recommendations relating to said report of the Secretary of Interior, to wit:

"The Arkansas River Compact Administration submits these comments and recommendations to the Governors of Colorado and Kansas respecting the proposed initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado, namely:

"1. The administration understands that the project plan proposes:

"(*a*) The importation by appropriate project works of approximately 70,000 acre-feet of water a year from the Colorado River Basin to the Arkansas River Basin for supplemental irrigation and domestic water supplies in Colorado and for the production of hydroelectric energy.

"(*b*) In connection with such importation of water and its regulation in the Arkansas River Valley by project works, the reregulation of native waters of the

Arkansas River (the term 'native water,' as herein used, being those waters covered and defined by art. III–B of the Arkansas River compact).

"2. The interstate water relations of Colorado and Kansas with respect to the Arkansas River do not justify any objection to the proposed project development for the importation of Colorado River water (described in subparagraph (*a*) above).

"3. The reregulation of native waters of the Arkansas River (native waters being as above-mentioned) concerns the Arkansas River Compact Administration and both Colorado and Kansas in complying with the provisions of the Arkansas River compact and maintaining the benefits and obligations of the two states under that compact. To that end, it is recommended to the Governors of Colorado and Kansas, and expressed as a policy of the Arkansas River Compact Administration, that the initial development, Gunnison-Arkansas project, Roaring Fork diversion, Colorado, as set forth in project planning Report No. 7–8a.49–1 of the Bureau of Reclamation, be approved: *Provided, however,* That there shall be no reregulation of native waters of the Arkansas River as proposed in such report until a plan of operation, rules, regulations, procedures, and agreements in furtherance thereof, including any pertinent agreements between the Corps of Engineers and the Bureau of Reclamation, shall have been submitted to, and approved by, the Arkansas River Compact Administration and the affected water users.

"4. It is the purpose and intent of these recommendations that the proposed project development shall not interfere with or defeat the rights, interests and obligations of Colorado and Kansas under the Arkansas River compact.

"be transmitted to the Governors of the States of Colorado and Kansas and such Governors be and are hereby requested to submit the same to the Secretary of Interior with their official State comments and recommendations upon said proposed project and development."

Colorado interprets and understands that paragraph 3 of the resolution of the Arkansas River Compact Administration is controlled by paragraph 4 thereof: and that the words "affected water users" in said paragraph 3 mean only water users in the State of Colorado so long as Colorado complies with the terms of said compact.

7. Paragraph 74, pages 27 to 33, both inclusive, under the heading "Operating Principles," contains the operating principles which the report explains were recommended by a policy and review committee set up by the Colorado Water Conservation Board to study and review plans and reports on the first stage of the Gunnison-Arkansas project. This committee was composed of representatives of the board, the Colorado Game and Fish Commission, western Colorado, the Arkansas Valley and the city of Colorado Springs. The report fails to explain that such committee was required to report to the Colorado Water Conservation Board and its recommendations would not be effective until approved by that board. The report on the project does not disclose what action was taken by the board nor does it contain all of the recommendations of the policy and review committee. Some of the matters contained in the report of the committee are not strictly concerned with project operation, but are related to, and constitute a material part of, such operating principles.

The recommendations of the policy and review committee were revised and approved by the Colorado Water Conservation Board on February 22, 1951. (See letter with attachments of the director of the Colorado Water Conservation Board dated February 27, 1951, and addressed to the director of region 7, Bureau of Reclamation.) Paragraph 74, pages 27 to 33, both inclusive, of the report correctly sets forth that part of the report of the policy and review committee, designated article II "Operating Principles," as revised and approved by the Colorado Water Conservation Board, but it omits other material portions of the committee's report as revised and approved by the Board, namely:

"The action of the policy and review committee will be presented to the Colorado Water Conservation Board for such action as the Board deems proper.

"The action of the Colorado Water Conservation Board will be incorporated in the official comments of the State of Colorado, made pursuant to section 1 of the 1944 Flood Control Act.

"The authorization of the project will recognize the operating principles approved by the Colorado Water Conservation Board.

"Prior to commencement of project construction, the following conditions precedent must be satisfied.

"(*a*) There will be executed a payment contract between the Eastern Colorado Conservancy District and the United States in which will be incorporated the approved operating principles.

"(*b*) There will be executed such contract with the Twin Lakes Reservoir and Canal Co. as is necessary to make effective the approved operating principles.

"(*c*) The Eastern Colorado Conservancy District will firmly bind itself to the operation of the project in accordance with the approved operating principles.

"It is recommended that this project shall hereafter be referred to as the Fryingpan-Arkansas project. Approval of this provision by eastern Colorado representatives shall not be implied as an abandonment of their expressed intention to obtain approval of a project from the Gunnison River nor shall approval of this provision by western Colorado representatives be construed as any consent on their part to the authorization of a project for the exportation of water from the Gunnison River to eastern Colorado.

"The committee recognizes that the approval of this report is not to serve as a precedent or example for the approval of any other transmountain diversion of major proportions not heretofore authorized.

"The policy of the State of Colorado as initiated in statewide meetings held under the auspices of the State Planning Commission at Denver and Grand Junction, and as evidenced by resolutions dated June 15, 1935, and February 28, 1936, was not adhered to because surveys of the character mentioned in said resolutions were not available to the committee. Nothin herein contained shall be deemed or construed as a precedent for Federal projects not heretofore authorized until adequate surveys have been made and the necessary data are available so that a general allocation or apportionment of the waters of the Colorado River, allocated for consumptive use in the State of Colorado, under the upper Colorado River Basin Compact, may be made between eastern Colorado and western Colorado as distinguished from an attempt to execute such State policy by a piecemeal or series of partial allocations, any of which may seriously interfere with a complete, overall State program."

Paragraph 88 of the report under the heading "Recommendations," states: "E. The project be operated under the direction of the Secretary of the Interior in accordance with the operating principles set forth in this report or as principles may be modified in the future by agreement between the Secretary and the Commission established by the State of Colorado."

It is understood that the operating principles, mentioned in this quotation from the report, are those set forth in paragraph 74, pages 27 to 33, both inclusive, and that the "commission" mentioned therein is the commission which may be created in the manner and for the purpose set forth in paragraph 17 of the operating principles. (See page 33 of the report.)

Colorado's approval of the plans set out in the report and of the authorization of the project is conditioned upon compliance with the operating principles set forth in the report (see par. 74, pages 27 to 33, both inclusive) and also full recognition and compliance with those portions of the policy and review committee's report, as revised and approved by the Colorado Water Conservation Board, which are omitted from the report and which are hereinabove set out; except that as to the name of the project, it is recommended and urged that in an appropriate manner the project should hereafter be known and referred to as the Fryingpan-Arkansas project. It is noted from the letter of the Commissioner of Reclamation to the Secretary of the Interior, contained in the report, that it is stated:

"This development is designed as a self-contained unit, and its construction would not imply a commitment for developing future water supplies in the Gunnison River Basin for diversion to the Arkansas River Basin."

Colorado approves this statement, but such a statement lends weight to the reason for changing the name of the project as herein recommended. Diversion from the Fryingpan River to the Arkansas has no relation to the Gunnison River. It is not proposed under this self-contained project to divert water to the Arkansas Basin from the Gunnison River. The identification of the project on the cover of the report and used throughout the report—"Initial Development, Gunnison-Arkansas Project, Roaring Fork Diversion, Colorado"—is a misnomer and misleading, and in the future may, in some manner, lead to unwarranted implications. In addition to the recommended change in project identification, Colorado requests that the project be authorized as the Fryingpan-Arkansas project.

8. The Colorado River Water Conservation District is an agency created by State statute (Chapter 20, p. 997, Session Laws of Colorado, 1937) for the conservation, use, and development of the water resources of the Colorado River and its principal tributaries. The area comprised within the district includes seven counties and a part of an eighth county within the natural drainage of the Col-

orado River in western Colorado. The Southwestern Water Conservation District is an agency created by State statute (ch. 231, p. 866, Session Laws of Colorado, 1941) for the conservation, use, and development of the water resources of the San Juan and Dolores Rivers and their principal tributaries. The district comprises seven counties and a part of an eighth county within the natural basin of the Colorado River in western Colorado. When the board of directors of each of these two districts passed upon the report and recommendations of the policy and review committee, including the operating principles, as revised, their separate resolutions, among other things, contained the following language:

COLORADO RIVER WATER CONSERVATION DISTRICT BOARD

"Be it further resolved, That in the opinion of the board of directors of the Colorado River Water Conservation District, the Colorado Water Conservation Board should adopt a resolution that no further federally financed transmountain diversions from the natural Colorado River Basin should be approved for authorization until the surveys described in said section IV above are completed and the need for the use of water in western Colorado has been determined." (Sec. IV, to which reference is made, is shown by the two paragraphs contained in the report of the policy and review committee, quoted on p. 5 of these comments, and commencing with the words "The committee recognizes" and "The policy of the State," respectively.)

SOUTHWESTERN WATER CONSERVATION DISTRICT BOARD

"* * * this Board feels it should interpose no objection to the proposed diversion, but with the clear and distinct understanding this consent shall not be considered as waiver of objections to any other federally financed transmountain diversion of the waters of the Colorado River; and with the further understanding that the State Water Conservation Board of the State of Colorado shall not approve of any other such federally financed diversion project until the studies of the needs of the Western Slope be fully completed so that an intelligent decision relative to such needs may be given. We feel that after the many and long delays in making such studies and the promises made by some high in authority in the Reclamation Service, the Western Slope is entitled to have such studies completed in the very near future, and that no further federally financed transmountain diversions should be made without the completion of such investigations."

At the meeting of the Colorado Water Conservation Board on February 22, 1951, when the revised report of the policy and review committee, including revised operating principles for this project, was approved by the Colorado Water Conservation Board, the Board unanimously approved two motions which provided that the resolutions, above mentioned and partially quoted, submitted by the Colorado River Water Conservation District and the Southwestern Water Conservation District be accepted and approved as a policy of the Colorado Water Conservation Board.

9. Paragraph 68 commencing on page 23 in about the middle thereof states: "The proposed basic rate of $3.60 per acre-foot at the Pueblo Reservoir has been determined to be within the payment capacity of the water users." It is respectfully requested that such proposed charge should not constitute either a maximum or a minimum charge nor should it indicate a uniform charge or indicate where water will be used or whether or not consideration in fixing charges can be given to return flows from such use. The figure is purely an estimated average charge per acre-foot and the district in allocating such water should be allowed complete latitude in connection therewith.

10. Paragraph 68 as contained on page 24 has the following sentence: "The district would assume responsibility for delivery of irrigation water." This responsibility is certainly not that of the United States, but neither should the district be responsible for patrolling every ditch. If water is turned out from the reservoir, it is immediately subject to the control of the State water officials, who should be advised of such rights in water and who are charged with the responsibility of delivering the same to the correct ditch. It is contemplated that each ditch will do its own policing.

11. Attention is directed to paragraph 68 on page 24 and the sentence reading "This district or possibly another entity would contract with the Government for Federal construction of the specific municipal water system * * *." It is contemplated that a proper repayment entity under Colorado laws such as a metropolitan water district may be created for this particular purpose or that a

joint contract executed between the various municipalities utilizing this feature will be executed and the project's authorization should be sufficiently broad to authorize any such contract deemed desirable.

12. Page 24 in the tabulation on function and source of revenue contains the following:

District tax ($132,000,000 at 1 mill —10 percent)..... $119,000

Attention is directed to the fact that under Colorado law, three possible rates are in existence; one-half of 1 mill, being the rate prior to delivery of project water; 1 mill, being the rate after such project water becomes available, and prior to the time of any deficiency or default; and 1½ mills in the event of default or deficiency. Levies in any of these three categories may be less but cannot exceed these figures.

13. Attention is directed to page 24, the item captioned "Municipal and industrial water, municipal supplies (38,000 acre-feet at various rates)." It is respectfully pointed out that it may be some years before this amount of water is utilized and that the quantity indicated is but an estimate which may be exceeded ultimately. The authorization of the project should not preclude the possibility of charging municipalities lower rates during the period of time that such water is not actually required for the municipal needs. Pueblo might ultimately require 10,000 acre-feet and desire at the outset to commit herself for the immediate purchase of 5,000 acre-feet. Until such time as she actually requires 10,000 acre-feet of water, she should not be charged therewith at the proposed rates. The project authorization should permit charging lower rates until the water is used for municipal purposes.

14. Attention is directed to paragraph 70 on page 25. It is respectfully suggested that the report makes no reference to potential evaporation savings by moving shallow plains storage reservoirs upstream and storing the same quantities of water at higher altitudes.

15. Attention is directed to a statement in the middle of page 38, reading:

"Such contracts should include provisions for the right of renewal thereof once or more than once under stated terms and conditions mutually agreeable to the parties and subject to increase or decrease in rates corresponding to increase or decrease of cost of construction and of operation, maintenance or improvement or deterioration in the payment ability of the water users."

This sentence must be reconciled with the existing Colorado law which is set forth in chapter 266 of the Session Laws of Colorado 1937, being section 19 thereof, which requires the petition for allocation of water filed by the water user and addressed to the conservancy district to contain therein the charge to be imposed for each acre-foot of water. The statute requires the petition to contain the following: (1) name of applicant, (2) quantity of water to be purchased or otherwise acquired, (3) descriptions of lands upon which the water will be used and attached, (4) price per acre-foot to be paid, (5) whether payments will be made in cash or annual installments, (6) agreement that the annual installments and the charges for maintenance and operating shall become a tax lien upon the lands for which such water is petitioned and allotted and to be bound by the provisions of this act and the rules and regulations of the board. While it was contemplated initially that the price per acre-foot would be fixed, such as, in the case of the Colorado-Big Thompson project, $1.50 per acre-foot, it is believed that this statutory provision can be complied with by stating the price per acre-foot shall be not less than $_____, nor more than $_____.

Respectfully submitted.

DAN THORNTON,
Governor, State of Colorado, and Ex-Officio Chairman of the Colorado Water Conservation Board.
CLIFFORD H. STONE,
Director, Colorado Water Conservation Board.

STATE OF CALIFORNIA,
DEPARTMENT OF PUBLIC WORKS,
Sacramento, August 27, 1951.

Hon. OSCAR L. CHAPMAN,
Secretary of the Interior,
Washington, D. C.

MY DEAR MR. SECRETARY: Your proposed report on the initial development (Roaring Fork diversion), of the potential Gunnison-Arkansas project, Colorado, dated May 4, 1951, was received on May 15, 1951, and on May 16, was transmitted

to the division of water resources of this department for review and report thereon. On May 17, the State engineer, chief of the division of water resources, forwarded copies of the report to the Colorado River Board of California for consideration by that board.

The report of the State engineer has been received and is transmitted herewith in accordance with the provisions of Public Law 534, 78th Congress, 2d session. Also transmitted herewith for your consideration are the comments of the Colorado River Board of California.

I concur in the comments of the State engineer and request that they be considered as expressing the views and recommendations of the State of California on your proposed report on initial development (Roaring Fork diversion) Gunnison-Arkansas project, Colorado. It is further respectfully requested that the report of the State engineer, dated August 27, 1951, and the comments of the Colorado River Board of California on this subject be transmitted to the President of the United States and to the Congress along with the other material that may be so transmitted.

Very truly yours,

FRANK B. DURKEE,
Director of Public Works.

STATEMENT OF THE STATE OF CALIFORNIA ON PROPOSED REPORT OF THE SECRETARY OF THE INTERIOR ENTITLED "INITIAL DEVELOPMENT, ROARING FORK DIVERSION, GUNNISON-ARKANSAS PROJECT, COLORADO"

INTRODUCTION

The Commissioner of Reclamation by letter, dated May 8, 1951, transmitted to to the director of public works, for the views and recommendations of the State of California the proposed report of the Secretary of the Interior on the initial development (Roaring Fork diversion), Gunnison-Arkansas project, Colorado (Project Planning Report No. 7–8a.49–1), approved and adopted by the Secretary on May 4, 1951.

The report was received in the office of the director of public works on May 15, 1951, and referred on May 16, 1951, to the State engineer, who is the chief of the division of water resources, for review and report. On May 17, 1951, two copies of the report of the Secretary of the Interior were transmitted by the State engineer to the Colorado River Board of California for comment.

The proposed report of the Secretary of the Interior comprises (*a*) a letter dated April 16, 1951, from the Commissioner of Reclamation to the Secretary of the Interior, approved and adopted by the Secretary of the Interior on May 4, 1951; (*b*) report of the regional director, region 7, United States Bureau of Reclamation, dated July 5, 1950, and revised February 23, 1951; and (*c*) a substantiating report including reports by cooperating agencies.

The proposed initial development (Roaring Fork diversion) is a feature of the potential Gunnison-Arkansas project, a major unit in the comprehensive plan of development of the water resources of the upper Arkansas River Basin. The initial development is a multipurpose project involving the diversion of water at elevation 8,100 feet from the Roaring Fork, a tributary of the Colorado, to the Arkansas River, a tributary of the Mississippi River.

The features of the project of the initial development as set forth in the proposed report of the Secretary of the Interior, comprise the following:

"(*a*) A system of about 50 miles of canals and tunnels on the western slope of the Continental Divide for the collection of water from Hunter Creek and Fryingpan River, tributaries of the Roaring Fork River.

"(*b*) Aspen Reservoir, with an active capacity of 28,000 acre-feet near the town of Aspen on the western slope to provide replacement water and water for future use in meeting the demands in western Colorado.

"(*c*) The Fryingpan-Arkansas tunnel, about 6 miles in length, for diverting water collected on the western slope to the eastern slope.

"(*d*) The Sugar Loaf Reservoir on the eastern slope of the upper Arkansas basin, enlarged from its present capacity of 17,000 acre-feet to 117,000 acre-feet for storage and regulation of water imported from the western slope.

"(*e*) The Snowden diversion dam on the Arkansas River above Snowden, Colo., and the Snowden diversion canal which would convey water from the Arkansas River to the enlarged Twin Lakes Reservoir.

"(*f*) The Twin-Lakes Reservoir in the upper Arkansas Basin, a few miles south of Snowden, Colo., enlarged from its present active capacity of 56,000 acre-feet

to 260,000 acre-feet, for storage and regulation of water imported from the western slope by the Fryingpan-Arkansas diversion, water imported by existing Twin Lakes diversion, and water diverted from the Arkansas River by the Snowden Canal.

"(*g*) The Pueblo Reservoir on the Arkansas River west of Pueblo, Colo., with a capacity of 400,000 acre-feet to store water for irrigation and municipal use and for flood control.

"(*h*) A project power system comprising 60 miles of canals, 7 power plants having an installed capacity of 104,800 kilowatts, 7 switchboards, 9 substations, and about 400 miles of transmission lines.

"(*i*) Specific municipal water supply facilities for furnishing additional municipal water to Colorado Springs, Pueblo, and several Arkansas Valley towns, which supply facilities would be constructed by the the United States only after construction by the communities themselves proves infeasible."

The total capital cost of the project is given in the report under review as $147,440,000 on the basis of October 1949 prices.

The capital cost of the Roaring Fork diversion features alone, taken from exhibit 7 of the substantiating report, are as follows:

Replacement reservoir—Aspen—28,000 acre-feet	$6, 746, 000
Hunter Creek-Aspen Canal—200 second-feet	190, 000
Hunter Creek extension canal	280, 000
Fryingpan collection system	20, 427, 000
Fryingpan-Arkansas divide tunnel	8, 839, 000
Total	36, 482, 000

The annual water supply diverted is given in the report under review as 69,200 acre-feet.

The annual cost of operation and maintenance including reserves for replacement, and the net annual revenues are given in the report as $1,335,200 and $2,872,300, respectively. The nonreimbursable costs are allocated in the report at $17,956,000 and the reimbursable costs at $129,484,000. Of the latter figure, $59,930,000 is allocated to irrigation but the probable repayment by irrigation is reduced to $10,881,600 through the application of interest ($49,048,400) on the power and municipal water investments. The latter figure $49,048,400 represents about 38 percent of the total reimbursable cost.

In the report, the capital cost allocated to power is $40,032,000, comprising a direct cost of $34,021,000 and a joint cost of $6,011,000. The average annual energy output and revenue anticipated from the project are estimated in the report at 370 million kilowatt-hours at 5.5 mills, amounting to $2,035,000 and 97,125,000 kilowatt-hours at 3.5 mills, amounting to $340,000, or a total of $2,375,000. The annual cost estimated on the bases of interest at 3 percent, repayment in 50 years on a 3-percent sinking-fund basis, and operation and maintenance and replacement, as shown in the report under review at $854,000, is $2,410,000, which is slightly larger than the estimated annual revenue.

The proposed report of the Secretary of the Interior finds the initial development of the Gunnison-Arkansas project has engineering feasibility, is economically justified and financially feasible, and concurs in and adopts the recommendations of the regional director.

COMMENTS

The proposed report of the Secretary of the Interior, including the report of the regional director and the substantiating report thereof, has been reviewed and carefully considered within the time limitations permitted by the Flood Control Act of 1944 (Public Law 534, 78th Cong., 2d session.).

As a result of this review and study, the following comments are respectfully submitted:

1. It is the policy of the State of California to favor full development of the waters of the Colorado River system which have been apportioned to the upper basin under the Colorado River compact and beneficial utilization thereof in accord with the provisions of that compact and related documents and laws.

2. The primary interest of the State of California in the initial development (Roaring Fork diversion) of the potential Gunnison-Arkansas project is that in its construction and operation, California will receive its due apportionment of the waters of the Colorado River system as provided for in the Colorado River compact and related documents and laws.

3. The State of California favors congressional authorization of the initial development (Roaring Fork diversion) of the Gunnison-Arkansas project and the

construction with Federal funds consistent with the national welfare (*a*) if the project qualifies under criteria, policies and procedures established by the Congress, and (*b*) if the diversion and utilization of the waters of the Colorado River system by and through the project works will not impair the rights of the State of California or any of its agencies to the waters of that system as defined and set forth in the Colorado River compact and related documents and laws, or will not adversely affect the quality of such waters to which California has rights.

4. If the project is authorized by the Congress, the State of California concurs in the recommendation of the regional director that suitable language be included in the authorizing document clearly stating that authorization or appropriation of funds for the project or for the continued investigations shall not in any way constitute a commitment, real or implied, to further importations from the Colorado River system to the Mississippi River Basin.

Appended for your consideration are the comments of the Colorado River Board of California.

Submitted by

A. D. EDMONSTON, *State Engineer.*

SACRAMENTO, CALIF., August 27, 1951.

[Inter-Departmental Communication]

STATE OF CALIFORNIA,
Los Angeles 13, August 2, 1951.

Subject: Review of Federal report; Gunnison-Arkansas project, Roaring Fork diversion.

To: Mr. A. D. Edmonston, State engineer, Division of Water Resources, Public Works Building, Post Office Box 1079, Sacramento 5, Calif.

From: Colorado River Board of California, 315 South Broadway.

Reference is made to letter dated May 8, 1951, from the Commissioner of Reclamation to the Honorable Charles H. Purcell, director of public works, State of California, transmitting in accordance with the requirements of the Flood Control Act of 1944, copies of the proposed report of the Department of the Interior on the initial development (Roaring Fork diversion), Gunnison-Arkansas project, Colorado, project planning report No. 7–8a.49–1, for information and such comments as the State might wish to make.

By interdepartmental communication dated May 17, 1951, you transmitted copies of that report to this office with the request that comments be furnished for incorporation in a report to be submitted by the director of public works. In response thereto, the Colorado River Board of California presents the following comments, which were approved at its regular meeting on August 1, 1951, with the request that they be incorporated in or transmitted with the report of the director of public works.

COMMENTS OF COLORADO RIVER BOARD OF CALIFORNIA

1. The report under review contemplates diversions from tributaries of Roaring Fork branch of the Colorado River through a transmountain tunnel to the Arkansas River Basin. It proposes an average consumptive use of 90,100 acre-feet a year. This quantity is apparently within the entitlement of the State of Colorado under the Upper Basin compact, and would be unlikely to have an important physical effect on the water supply of the lower basin. It is indicated, however, by the title of the report, and otherwise, that the Roaring Fork diversion is only an initial stage of the potential Gunnison-Arkansas project which would involve exportation of a relatively large quantity of Colorado River water, possibly as much as 900,000 acre-feet a year, or more (H. Doc. 419, 80th Cong., 1st sess.) and appropriation of funds for continued investigation of such extended project is recommended by the regional director. Exportation of large quantities of pure snow water from the headwaters of the Colorado River would likely have serious adverse effect upon the quality of Colorado River water available to the lower basin under the Colorado River compact. The compact intends that the lower basin receive water which is usable. It is believed that before the project is authorized, adequate studies should be made to determine the effect of all anticipated transmountain diversions from the Colorado River upon the quality of water thereafter available to the lower basin.

Should the project be authorized by the Congress, the legislation should, as recommended by the regional director, include suitable language stating that the

authorization constitutes no commitment, real or implied, to further exportation of water from the Colorado River system.

2. The Colorado River compact limits use of Colorado River water to the seven Colorado River Basin States. With exportation of any large quantity of Colorado River water to the Arkansas River, substantial return flows to the Arkansas may be experienced. Any authorization of the project should require adequate assurances from the State of Colorado that the water exported to the Arkansas will be consumptively used in Colorado, i. e., that it will not permit the flow of the Arkansas River at the Colorado-Kansas State line to be augmented by return flows from the Colorado River water.

3. The report assumes or implies the correctness of certain interpretations of the Colorado River compact with which California does not agree. If Congress approves the construction of the project, it should make it clear that it does not approve nor disapprove any such interpretations of the Colorado River compact.

4. The financial plan of the project depends upon the use of the interest component of power and municipal revenues to pay a major portion of the irrigation construction costs. Such use of the interest component is based upon an opinion of the Solicitor of the Department of the Interior in 1944, which has not been approved by the Congress and is believed to be contrary to law. It is also in conflict with the Report of the President's Water Resources Policy Commission submitted to the President in December 1950. The Report of the Commission is likely to receive consideration during the current Congress.

As respects the use of the interest component, term of repayment, and other matters of general policy, Congress should first reach its conclusions upon the Report of the President's Commission, and then apply them in the authorization of such a project as the one under review. For a statement of California's position on this subject, reference is made to the Views of the State of California on Elements of a National Water Resources Policy Submitted to the President's Water Resources Policy Commission dated June 1950.

COLORADO RIVER BOARD OF CALIFORNIA,
By RAYMOND MATTHEW, *Chief Engineer.*

OFFICE OF THE GOVERNOR
STATE HOUSE

PHOENIX, ARIZ., *August 28, 1951.*

Mr. MICHAEL STRAUS,
Commissioner of Reclamation,
Department of the Interior,
Washington 25, D. C.

DEAR MR. STRAUS: At my request the Arizona Interstate Stream Commission examined your project planning report No. 7–8a. 49–1 on the initial development of the Gunnison-Arkansas project, Roaring Fork diversion, Colorado.

I have received their comments, which I hereby adopt as the official comments of the State of Arizona, and enclose herewith copy of their letter.

Sincerely yours,

HOWARD PYLE, *Governor.*

ARIZONA INTERSTATE STREAM COMMISSION,
Phoenix, Ariz., August 28, 1951.

Hon. HOWARD PYLE,
Governor of Arizona,
State House, Phoenix, Ariz.

DEAR GOVERNOR PYLE: We have examined project planning report No. 7–8a.49–1 of the Department of the Interior, Bureau of Reclamation, Region 7, on the initial development of the Gunnison-Arkansas project, Roaring Fork diversion in Colorado.

We have not attempted any detailed analysis of engineering features of financial studies, but have concerned ourselves solely with the question of the diversion of 69,000 acre-feet of water from the head waters of the Roaring Fork River to the Arkansas River Basin.

That quantity of water falls clearly within the right of the State of Colorado to the use of Colorado River water as agreed in the upper Colorado River Basin compact.

The State of Arizona, of course, is not concerned where water is used within the State of Colorado so long as it is within the share of that State. Accordingly, we have no objection to the subject report or the diversion of the quantity of water indicated above.

Respectfully yours,

ARIZONA INTERSTATE STREAM COMMISSION.
By WAYNE M. AKIN, *Chairman.*
By RAY KILLIAN, *Secretary.*

UNITED STATES DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
Washington 25, D. C., September 11, 1951.

The SECRETARY OF THE INTERIOR.

SIR: This is my report on the Fryingpan-Arkansas project, Colorado, formerly called the initial development, Roaring Fork diversion, Gunnison-Arkansas project.

In your behalf, copies of the report on this project, which you approved and adopted as your proposed report on May 4, 1951, were sent to the Secretary of the Army and to designated officials of the States of Arizona, California, Colorado, Kansas, Nevada, New Mexico, Oklahoma, Utah, and Wyoming for their views and recommendations in accordance with the provisions of section 1 of the Flood Control Act of 1944 (58 Stat. 887), and to the Governor of Colorado for the report and recommendations of the head of the agency exercising administration over the wildlife resources of the State of Colorado in accordance with the requirements of the act of August 14, 1946 (60 Stat. 1080). Copies of the proposed report were sent also to the Federal Power Commission, the Departments of Agriculture and Commerce, the Corps of Engineers, and the Public Health Service for their comments. Copies of the written views of the States and of the Federal agencies which have been received in response to these transmittals are attached with a copy of your proposed report.

The reviewing officials of Colorado, which is the State directly affected, concur in the findings of the project report that the products and services which this proposed development would provide or make possible are greatly needed and that the project is engineeringly feasible, economically justified, and financially feasible. They approve the proposed development conditioned upon compliance with the operating principles set forth in the report and full recognition of and compliance with certain portions, quoted in Colorado's letter of comments, of the report of the Colorado Water Conservation Board's Policy and Review Committee, as it was approved by the board on February 22, 1951. We approve of the proposed operating principles and have every intention of complying with them if and when the project is authorized, constructed, and in operation. Colorado objects to the name heretofore given the project and recommends that it be known and referred to as the Fryingpan-Arkansas project. As this development is designed as a self-contained unit and its construction would not imply a commitment to develop future water supplies in the Gunnison River Basin for diversion to the Arkansas River Basin, as the diversion is from the Fryingpan River to the Arkansas River, and in view of the desires of the State of Colorado, I recommend that this proposed development, identified in your proposed report as the initial development, Roaring Fork diversion, Gunnison-Arkansas project, be hereafter known as the Fryingpan-Arkansas project.

The State of Kansas, which is a party to the Arkansas River Compact and has a strong interest in any proposed development and use of the water of that stream, has no object to the development as set forth in the project report.

The States of Arizona, California, Utah, and Wyoming have no objection to the authorization and construction of this project.

The Public Health Service suggests revision of statements relative to water pollution in the Arkansas River Valley. As these revisions are based on data compiled in recent joint studies by the Public Health Service and the State of Colorado, I have no objection to this suggestion and recommend that, by this reference, the report be considered modified as suggested by the Public Health Service in its attached letter of comments.

Other comments have been made which are set forth in the attached digest. The 90-day period specified by law for receipt of comments on this report expired on August 16, 1951. Submittal of the report to you was deferred until now in anticipation that additional comments would be received. If other comments are received, they will be forwarded to you.

After consideration of all comments received, I recommend that your proposed report be modified only as set forth above; that you adopt as your final report on the Fryingpan-Arkansas project the report which you approved and adopted as your proposed report on May 4, 1951, with the above modifications: and that you transmit it, together with copies of the attached comments, to the President and, subsequently, to the Congress in accordance with the provisions of the Reclamation Project Act of 1939.

Respectfully,

MICHAEL W. STRAUS, *Commissioner.*

Approved and adopted: October 19, 1951.

OSCAR L. CHAPMAN,
Secretary of the Interior.

UNITED STATES DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington 25, D. C., October 19, 1951.

THE PRESIDENT,
The White House.
(Through Bureau of the Budget.)

MY DEAR MR. PRESIDENT: My report on the Fryingpan-Arkansas project, Colorado, is transmitted herewith pursuant to section 9 (a) of the Reclamation Project Act of 1939 (53 Stat. 1187).

The waters of the Arkansas River in the upper Arkansas River Basin are overappropriated, resulting in serious loss in crop production on presently irrigated farmland. Stabilized agricultural economy in the area requires supplemental water supplies. Additional quantity and better quality of domestic and municipal water is critically needed in the Arkansas Valley, Colo. There is a need for additional electric energy in the project power market area and normal uses of electric energy would expand rapidly if not restricted by a limited supply. Floods in the upper Arkansas Valley threaten the loss of property and discourage investment. Sediment and pollution control are needed. The most pressing and immediate needs of the upper Arkansas River Basin can be met by the Fryingpan-Arkansas project which is herein recommended for authorization and construction.

The report has been transmitted to the States of the Colorado River Basin, to the States of Kansas and Oklahoma, and to the Secretary of the Army for their views and recommendations as required by the provisions of the Flood-Control Act of 1944 (58 Stat. 887); to the State of Colorado for the comments of the head of the agency exercising administration over the wildlife resources of the State, as required by the provisions of the act of August 14, 1946 (60 Stat. 1080); and to the Departments of Agriculture and Commerce, the Federal Power Commission, the Corps of Engineers, and the Public Health Service, in accordance with interagency agreements. Copies of all the comments received are enclosed with the report.

I shall appreciate having advice concerning the relationship of this proposed project to your program before I transmit the report to the Congress for its consideration and appropriate action in accordance with the provisions of the Reclamation Project Act of 1939.

Sincerely yours,

OSCAR L. CHAPMAN,
Secretary of the Interior.

UNITED STATES DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
Washington 25, D. C., April 16, 1951.

THE SECRETARY OF THE INTERIOR:

DEAR SIR: This is my proposed report on the Initial Development, Roaring Fork Diversion, of the potential Gunnison-Arkansas project, Colorado. My report is based on and incorporates the accompanying report of the Regional Director, Bureau of Reclamation, Denver, Colo., dated February 23, 1951.

The potential Gunnison-Arkansas project is a major unit in the comprehensive plan of development of the water resources of the upper Arkansas River basin. The Initial Development (Roaring Fork Diversion) is a multiplepurpose project involving transmountain diversion of water from the Roaring Fork River, a tributary of the Colorado. This development is designed as a self-contained

unit, and its construction would not imply a commitment for developing future water supplies in the Gunnison River basin for diversion to the Arkansas River basin. This development would provide (*a*) about 185,000 acre-feet of supplemental irrigation water at canal headgates in the Arkansas Valley through transmountain diversion, conservation of flood flows, reregulation of winter flow, and reuse of return flows for water-thirsty lands which, even with this additional supply, will experience an average annual headgate shortage of about 16 percent, (*b*) about 15,000 acre-feet of municipal water to supplement the municipal supply for Colorado Springs, Pueblo, and several Arkansas Valley towns where additional quantity and better quality water is critically needed, (*c*) about 467 million kilowatt hours of electric energy to help meet the critical need for electric power in the project service area and permit expansion in the normal uses of electric energy, (*d*) flood protection which would eliminate 66 percent of the probable annual flood damages between Pueblo and the John Martin Reservoir, estimated to be about $890,000, (*e*) sediment control, stream pollution abatement, and preservation and propagation of fish and wildlife in certain areas; all of which are important and valuable contributions of the project.

These purposes would be accomplished through construction of (a) a system of about 50 miles of canals and tunnels on the western slope of the Continental Divide for the collection of water from Hunter Creek and Fryingpan River, tributaries of the Roaring Fork River, (b) Aspen Reservoir, with an active capacity of 28,000 acre-feet near the town of Aspen on the western slope to provide replacement water and water for future use in meeting the demands in western Colorado, (c) the Fryingpan Arkansas tunnel, about 6 miles in length, for diverting water collected on the western slope to the eastern slope, (d) the Sugar Loaf Reservoir on the eastern slope of the upper Arkansas basin, enlarged from its present capacity of 17,000 acre-feet to 117,000 acre-feet for storage and regulation of water imported from the western slope, (e) the Snowden Diversion Dam on the Arkansas River above Snowden, Colo., and the Snowden Diversion Canal which would convey water from the Arkansas River to the enlarged Twin Lakes Reservoir, (f) the Twin Lakes Reservoir in the upper Arkansas basin, a few miles south of Snowden, Colo., enlarged from its present active capacity of 56,000 acre-feet to 260,000 acre-feet, for storage and regulation of water imported from the western slope by the Fryingpan-Arkansas diversion, water imported by existing Twin Lakes diversion, and water diverted from the Arkansas River by the Snowden Canal, (g) the Pueblo Reservoir on the Arkansas River west of Pueblo, Colo., with a capacity of 400,000 acre-feet to store water for irrigation and municipal use and for flood control, (h) a project power system comprising 60 miles of canals, seven power plants having an installed capacity of 104,800 kilowatts, seveh switchyards, nine substations, and about 400 miles of transmission lines, (i) specific municipal water supply facilities for furnishing additional municipal water to Colorado Springs, Pueblo, and several Arkansas Valley towns, which supply facilities would be constructed by the United States only after construction by the communities themselves proves infeasible. These proposed works, which make up the initial development, are estimated to cost $147,440,000 on the basis of October 1949 price levels which are just slightly lower than present price levels. The cost of operation and maintenance, including reserves for replacement, is estimated to be $1,335,200 annually.

The Initial Development of the Gunnison-Arkansas project has engineering feasibility. It represents the minimum practical project. It is designed as a self-contained unit and its construction would not imply a commitment for expansion, extension, or enlargement; neither would it impair or duplicate future development. It would be operated in accordance with the principles set forth in the regional director's report. The Twin Lakes Reservoir & Canal Co. has expressed a willingness to execute the water exchange agreement which is prerequisite to the prevention of damage to the fisheries of the Roaring Fork River, and which is contemplated by the operating principles. The water to be imported from the Colorado River watershed is to come from Colorado's apportionment under the Upper Colorado River Basin compact, and there is sufficient water supply for the project.

The initial development of the Gunnison-Arkansas project is economically justified and financially feasible. The ratio of annual benefits to annual costs is about 1.7 to 1.0. Net annual revenues would amount to about $2,870,000. It is estimated that all reimbursable costs would be returned to the United States in 50 years. The tentative allocation of costs among the various purposes and the estimated payments are summarized in the following tabulation:

Function	Allocation	Probable repayment
Reimbursable:		
Irrigation	$59,930,000	
Probably can be returned in 40 years without interest through payments by irrigation water users and district beneficiaries		$10,881,600
Probably can be returned in 40 years without interest through application of interest on power and municipal water investment		49,048,400
Power	40,032,000	
Probably can be returned in 50 years with interest at 3 percent		40,032,000
Municipal and industrial water supply	29,522,000	
Probably can be returned in 40 years with interest at 2 percent		29,522,000
Total, reimbursable	129,484,000	129,484,000
Nonreimbursable:		
Flood control	15,777,000	----------
Fish and Wildlife	2,179,000	----------
Total, nonreimbursable	17,956,000	----------
Grand total	147,440,000	129,484,000

Irrigation repayment will be accomplished under a contract with a water conservancy district. Municipal and industrial water repayment will be accomplished under contracts with this district or possibly another entity. Separate contracts will cover specific municipal water supply works if they are constructed by the United States and will require repayment of the cost of these works with interest over a period of 40 years. Power payments will be accomplished under contracts for furnishing electric energy at the lowest prices consistent with sound business principles in order to encourage the most widespread use of power throughout the area of service.

I concur in and adopt the recommendations of the regional director as set forth in his report.

I recommend that you approve and adopt this report as your proposed report on the initial development, Roaring Fork diversion, Gunnison-Arkansas project, Colorado, and that you authorize me, in your behalf, to transmit it to the Secretary of the Army; to the States signatory to the Colorado River Compact, and to the States of Kansas and Oklahoma in accordance with the provisions of section 1 of the Flood Control Act of 1944 (58 Stat. 887); to the head of the agency of the State of Colorado exercising administration over the wildlife resources of that State, in accordance with the provisions of the act of August 14, 1946 (60 Stat. 1080); and to other interested Federal agencies for their views and comments.

Respectfully,

MICHAEL W. STRAUS,
Commissioner.

Approved and adopted May 4, 1951.

OSCAR L. CHAPMAN,
Secretary of the Interior.

UNITED STATES DEPARTMENT OF AGRICULTURE,
June 8, 1953.

Hon. JOSEPH M. DODGE,
Director, Bureau of the Budget.

DEAR MR. DODGE: In response to an informal request from the Civil Works Division, Bureau of the Budget, we have reviewed the revised report of the Department of the Interior for the proposed Fryingpan-Arkansas project, Colorado. Particular attention has been given the modified financial plan. This is a multiple-purpose project involving the partial development of the water resources of the upper Arkansas River Basin and a transmountain diversion of water from the Colorado River. The initial report on the proposed project was previously

reviewed by the Department in response to a request from the Commissioner of Reclamation, dated May 8, 1951.

We have reviewed our previous comments and have concluded that they are still applicable to the revised proposal. The economic feasibility of that portion of the project involving the diversion of water from the Colorado Basin remains open to serious question. The transmountain diversion features of the project should be analyzed separately and their justification determined on the basis of incremental effects when added to those parts of the project designed to make more effective use of the water supply already available in the upper Arkansas Basin. The obviously high cost of importing water from the Colorado River Basin makes such a separate evaluation particularly important if generally recognized formulation procedures are followed and uneconomic segments are excluded. The provisions of Bureau of the Budget Circular A–47 require a showing that separate features are economically justified.

The revised financial plan for the reimbursement of project costs modifies the initial plan in a number of respects. The principal change in the revised financial plan consists of increasing the annual payments by irrigators and districts from $272,040 to $622,000 and extending the period over which payments would be made from 40 to 69 years. Under the revised plan the total payments over the proposed repayment period by irrigators and districts would increase from 18 percent of the irrigation investment costs to 57 percent. The present worth of such payments would be 11 percent of such costs under the previous plan and 27 percent under the revision.

Under both plans the remaining allocation to irrigation would be obtained from power and municipal water revenues. Under the previous plan, the interest charges on both power and municipal water over a 38-year period would be credited to the irrigation repayment account. Under the new plan, power and municipal water revenues would be credited to the irrigation repayment account only after the investment costs of such purposes had been returned with interest. Power revenues from the 52d to the 69th year and municipal water revenues from the 62d year to the 69th year would be so used.

The practice under the previous plan of crediting the irrigation repayment account with the interest charge on the investment in power and municipal water has the effect of treating all reimbursable costs as though they were interest free. The amount of the net Federal contribution involved may be obtained by comparing the present value of all project revenues with the reimbursable investment costs. Under the previous plan, the present worth of revenues amounted to 60 percent of reimbursable construction cost. Despite the extension in repayment periods and the increase in the level of payments by irrigators and districts, the present value of revenues under the revised plan would only be increased to 66 percent of construction costs. The net Federal contribution would be reduced from 40 percent of the reimbursable costs under the previous plan to 34 percent under the revised plan.

Since the revenues from other purposes under either plan are sufficient to repay at least their costs, the entire amount of the contribution is chargeable to irrigation. The contribution to irrigation under the previous plan amounting to 89 percent of the irrigation construction cost would be reduced to 73 percent under the revised plan.

About two-thirds of the increase in the present value of project revenues under the revised plan results from the higher payments by irrigators and districts. The amount that farmers would be expected to pay for reimbursement of project costs would increase from $3.60 per acre-foot of water for 40 years under the original plan to $5.40 for 69 years under the revised plan. The basis for the increased charge is due entirely to a shift from the 1939–44 price-level base of 144 for prices received to a projected index of 215. Whether the repayment ability of farmers will be sufficient to bear the proposed charges is questionable. The higher per acre-foot water charge coupled with the 29-year extension of the repayment period would materially reduce the attractiveness of the project to irrigators.

It also appears questionable whether all of the income increases may properly be credited to the provision of supplemental irrigation water. The farm budget calculations upon which farmers' repayment ability is based include changes in a number of production factors other than additional irrigation water. For example, it is expected that larger amounts of fertilizer would be used. It is not clear that adequate allowance has been made in these calculations for the value of the present winter diversions.

The modified financial plan contemplates charges in the amount of $166,500 annually for the converted winter flow. Since the present holders of the rights to winter flows would presumably have to agree to a conversion to storage, the practicability of this entire feature of the project is also subject to question.

Sincerely yours,

TRUE D. MORSE,
Acting Secretary.

Mr. SAYLOR. May I ask one question? Am I correct that the report of the Bureau of the Budget was made a part of the record yesterday?

Mr. HARRISON. Yes, both the report and the Secretary's letter were offered at the time the Secretary was on. (See p. 75).

Mr. HARRISON. Is that all, Mr. Saylor?

Mr. SAYLOR. Yes.

Mr. HARRISON. Now, Mr. Matthew, would you identify yourself and proceed.

STATEMENT OF RAYMOND MATTHEW, CHIEF ENGINEER, COLORADO RIVER BOARD OF CALIFORNIA, LOS ANGELES, CALIF.

Mr. MATTHEW. Thank you, Mr. Chairman.

My name is Raymond Matthew. I am chief engineer of the Colorado River Board of California. I appear here on behalf of the Colorado River Board of California, which is a State agency created by act of the legislature in 1937. The board is charged with the responsibility for protecting the interests of California in the waters of the Colorado River. It is composed of six members appointed by the Governor, each representing one of the public agencies having established rights to the use of water or power from the Colorado River.

Proposed project: The proposed Fryingpan-Arkansas project sought to be authorized under H. R. 236, 83d Congress, 1st session, would divert water from the Colorado River Basin to the Arkansas River Basin in Colorado and conserve and re-regulate Arkansas River waters in combination with imported Colorado River Basin water, for the purposes of supplying supplemental irrigation water to 309,000 acres of presently irrigated lands in the Arkansas River Basin, furnishing additional municipal water supplies and generating hydroelectric power. Transmountain diversions would be made from Hunter Creek and Fryingpan River, tributaries of the Roaring Fork branch of the Colorado River in west-central Colorado.

The plans for the proposed project are summarized in Senate Document 106, 82d Congress, 2d session, to which the pending bill refers; but are more fully described with substantiating materials in the report of the Bureau of Reclamation (Project Planning Rpt. No. 7–8a.49–1, dated January 1950) entitled "Initial Development, Roaring Fork Diversion, Gunnison-Arkansas Project", which was approved and adopted by the Secretary of the Interior on May 4, 1951. It is understood that cost estimates and related financial aspects have recently been revised.

Official comments of State of California: The project planning report referred to was submitted in May 1951 to interested States and Federal departments and agencies, for review and comment under the provisions of the Flood Control Act of 1944. The views and recommendations of the State of California, including the comments

of the Colorado River Board of California, were submitted to the Secretary of the Interior on August 27, 1951. A copy of those comments is submitted herewith, with the request that the same be made a part of the record in connection with this statement.

Mr. SAYLOR. Mr. Chairman, that document was included in those I had made a part of the record. (See p. 246.)

Mr. HARRISON. Very well.

MI. MATTHEW. It will be noted that the State of California in its comments favors the authorization of the proposed project, provided it—

qualifies under criteria, policies and procedures established by the Congress,

and provided—

the diversion and utilization of the waters of the Colorado River system by and through the project works will not impair the rights of the State of California or any of its agencies to the waters of the system as defined and set forth in the Colorado River Compact and related documents and laws, or will not adversely affect the quality of such waters to which California has rights.

Interest of Colorado River Board of California: The primary interest of the Colorado River Board of California in this proposed development is in certain basic factors involved therein affecting or relating to water supply and the rights of California and its agencies in and to the use of Colorado River water. I appear here, therefore, to emphasize those basic factors and the need for certain clarifications in the interest of protecting California's rights.

Limitation in project scope: The Bureau's report above referred to states that the Roaring Fork diversion is planned as a completely independent project. Water proposed to be diverted from the Colorado River Basin would be taken entirely from the headwaters of the Roaring Fork River, a tributary of the Colorado River not connected with the Gunnison River.

However, the report referred to also states that the Roaring Fork diversion could become the first stage of a much larger potential Gunnison-Arkansas project which would involve the exportation of a relatively large quantity of Colorado River water, possibly as much as 900,000 acre-feet or more annually according to the Bureau's report on the Colorado River (H. Doc. 419, 80th Cong., 1st sess.). The regional director of the Bureau of Reclamation recommends the appropriation of funds for the continued investigation of the comprehensive plan.

The proposed project described in the Bureau's report, as summarized in Senate Document 106, 82d Congress, 2d session, to which the pending bill refers, has been redesignated as the Fryingpan-Arkansas project. However, the language of the pending bill might be construed as giving "blank check" authorization for substantial authorization for substantial modifications and additions to the works described in Senate Document 106.

Any implication that the project proposed to be authorized by H. R. 236 is to be the forerunner of a much larger project for exportation of Colorado River water should be eliminated. Any request for funds to investigate the larger potential Gunnison-Arkansas diversion should be dissociated from the request for authorization of the Frying-Arkansas project.

It is the position of the Colorado River Board of California that, should the proposed Fryingpan-Arkansas project be authorized by

the Congress, the legislation should, as recommended by the regional director, include suitable language providing that such authorization shall constitute no commitment, real or implied, to further exportation of water from the Colorado River system.

Availability of water supply from Colorado River system: The proposed project contemplates the transmountain diversion of Colorado River system waters, with resulting estimated average annual consumptive use of 90,100 acre-feet.

You might note that that figure is a little bit different than some of the other figures you have heard in this testimony, but the 90,000 acre-feet represents the Bureau of Reclamation's estimate of the total consumptive use that would be involved, including the tunnel diversion of 69,200 acre-feet, the Twin Lakes extra diversion of 14,900 acre-feet, and also some consumptive use on the Western Slope in connection with the fish facilities.

This quantity, of itself, is evidently within the entitlement of the State of Colorado under the upper-basin compact; but the full list of claimant projects in Colorado, and their water requirements, has not yet been determined or made known.

The report states that streamflow in the diversion area on the western slope is in excess of present utilization in that area and that during the period October 1910 through September 1944 flows averaging approximately 84,100 acre-feet a year were available for diversion to the eastern slope. However, the report does not contain sufficient evidence to substantiate the conclusion regarding the physical and legal availability of water in relation to the needs of existing and other potential projects. Also, it does not reveal the probable variation in annual amounts that would have to be diverted in order to average 69,200 acre-feet a year through the project tunnel and 14,900 acre-feet a year through the Twin Lakes Co. system. It appears there would be years in which the amount of water available for diversion from the Roaring Fork tributaries would be less than the contemplated average diversion, necessitating diversions above average in other years in order to maintain the average set up in the report as the basis for design of the project.

This project and its proposed operation thus involves one of the questions of interpretation of the Colorado River Compact, which concerns California; namely, whether uses chargeable against compact apportionment are to be computed on an actual annual basis or a hypothetical average basis.

It is the position of the Colorado River Board of California that the Colorado River compact under the apportionemnt made by article III (a) entitles the upper basin to the beneficial concumptive use of 7,500,000 acre-feet, as a maximum in any 1 year and not to an average of that amount reckoned over a period of years; and that such consumptive use is to be measured at places of use in the natural basin or at points of diversion in cases of transmountain export, and not in terms of depletion at some distant downstream point on the main Colorado River such as Lee Ferry.

Chairman MILLER. If you will yield at that point, has that point been settled by any court as to whether it was a year-by-year basis or a 10-year average?

Mr. MATTHEW. No, sir.

Chairman MILLER. Then it is your opinion it is on a yearly basis of 7,500,000 acre-feet?

Mr. MATTHEW. That is correct. It is something that undoubtedly would have to be decided in the adjudication of these questions of interpretation.

Chairman MILLER. Do you think that the amount of water we promised Mexico is on a yearly basis or computed on a 10-year basis?

Mr. MATTHEW. The amount of water under the Mexican water treaty is a guaranteed delivery each year of a million and a half acre-feet, with the provision that some additional water could be given them in very wet years, and in conditions of drought that that amount might be reduced.

Chairman MILLER. But you think the question of the amount of water that the upper Colorado River is entitled to is a question as to whether it is 7½ million feet per year or if in 1 year it fell down to 5 million feet, the next year it could not be up to maybe 9 million? You do not think it is an average, you think it is a year-by-year basis?

Mr. MATTHEW. Our belief is that the compact means a maximum in any one year of 7½ million acre-feet.

Mr. SAYLOR. Wait a minute, Mr. Matthew. The terms of the Colorado River compact is, "The upper division of the Colorado River Basin may not cause the flow of the Colorado River at Lee Ferry to be depleted below 75 million acre-feet for any consecutive 10-year period."

Mr. MATTHEW. That is right. That is an entirely separate covenant from article III (a). That is an obligation on the part of the upper basin not to deplete the flow at Lee Ferry at any time below an average of 75 million acre-feet in any 10 consecutive years.

Mr. SAYLOR. Let us assume just for the purpose of argument here that one year it went down to 5 million acre-feet and the next year it went up to 15 million.

Mr. MATTHEW. As far as that covenant is concerned in article III (d), as long as they deliver 75 million acre-feet reckoned in a continuing 10-year series, that is all they have to do.

Mr. SAYLOR. That is all they have to do?

Mr. MATTHEW. Yes.

Mr. ASPINALL. What you are talking about is the reverse, is it not?

Mr. MATTHEW. No; I am talking about something entirely different. I am talking about the apportionment under article III (a) and the use under that apportionment. And the indication here is that it is assumed in the Bureau's report that a varying quantity of water could be used from year to year which over a long period of years would average so much.

Now over the entire upper basin, if that same theory were in effect, it would mean an average of 7,500,000 acre-feet over a long period of time rather than a maximum in any one year of 7,500,000. In other words, it might vary from 4 or 5 million feet up to 9 million acre-feet as long as the average of 7,500,000 acre-feet is kept.

Now, our contention is that the consumptive use in any one year under the apportionment would be a maximum of 7,500,000 acre-feet.

Mr. SAYLOR. And you have the same contention for maximum use in a year down in the lower basin?

Mr. MATTHEW. Yes, sir; under article III (a) of the compact.

It is further the position of the Colorado River Board of California that if the proposed project be authorized, the legislation should contain suitable language to make it clear that the Congress does not approve or disapprove any interpretations of the Colorado River compact such as may be assumed or implied in the pending bill or in the report of the Bureau of Reclamation on the proposed project.

In other words, we are not asking the committee to adjudicate this thing. We merely want to go on record in regard to this matter.

Mr. RHODES. I have been thinking over something I believe you said a few minutes ago. Did you mention something about consumptive use in regard to fish and wildlife?

Mr. MATTHEW. Yes, I did.

Mr. RHODES. Would you care to elucidate that? I did not realize that you consumed water particularly in producing fish.

Mr. MATTHEW. Well, the project has certain facilities which are designed to take care of water supplies for maintaining water in the streams over there, and that involves certain conveyance and evaporation losses, I take it, which have been estimated by the Bureau at roughly about 6,000 second-feet.

Mr. RHODES. Were you referring then to the losses by evaporation and reservoir depletion when you made that statement, or are you referring to some theory that the impoundment of that water for wildlife purposes is beneficial consumptive use in itself?

Mr. MATTHEW. No, I was merely citing the estimates of the Bureau itself. It is in their report that they estimate that some 6,000 acre-feet would be involved in these works on the west slope.

Mr. RHODES. To clear the record, before when you said second-feet you meant acre-feet and not second-feet?

Mr. MATTHEW. Acre-feet; yes.

Mr. RHODES. Thank you.

Mr. MATTHEW. Quality of water: A problem of great concern and significance to the water users in the Colorado River Basin, especially those in the lower basin, is the effect of existing and potentially larger future export diversions of water from the upper Colorado River Basin upon the quality of water remaining in the Colorado River system. Generally the water for export is and will be diverted at high altitudes where the stream flow is much better in quality than in the lower parts of the system, and the diversion of relatively pure water leaves a higher concentration of minerals in the residual flow.

It appears that the overall effect of the increased diversion proposed by the Fryingpan-Arkansas project would be small.

Nevertheless, in view of the allusions to the much larger potential diversion of the proposed Gunnison-Arkansas project which the Bureau report on the Colorado River shows might be in excess of 900,000 acre-feet annually, the principles involved are vital and should be thoroughly examined, analyzed and reported upon in connection with this project together with other proposed developments and uses of the water resources of the Colorado River Basin.

It is the position of the Colorado River Board of California that the Colorado River compact intends that the water available for use thereunder in the lower basin shall be suitable in quality for all necessary purposes. Therefore, it is further the Board's position that additional projects for exportation of water from the upper Colorado River Basin should be authorized only after thorough investigation of

the problem of quality of water and only after satisfactory evidence is presented that the proposed developments would have no harmful effect upon the quality of water remaining for use within the lower basin.

Control of export diversions: The Colorado River compact limits use of Colorado River water to the seven Colorado River Basin States. With exportation of any large quantity of Colorado River water to the Arkansas River, substantial return flows to the Arkansas may be experienced.

Mr. RHODES. Before you go on, I would like to ask a few questions on the quality of water point. It is very interesting to me. Do you feel that the lower basin is entitled to receive whatever water is allocated to it on the Santa Fe compact in approximately the same quality as the natural virgin flow of the river would have provided? Is that your standard of quality?

Mr. MATTHEW. No, I do not think that could be our contention. The Colorado River Board of California, in common with agencies of other basin States, is in favor of as fully a development of the Colorado River Basin as is practical to have. And obviously, with any development of use of water, there is going to be some deterioration in quality. We are merely bringing attention here at this juncture to this problem in order to be on record and to point out the necessity of this problem being given full study so that the development that does occur in the future can be guided with the result of giving the greatest benefits to the whole basin.

Mr. RHODES. In other words, you feel that a study should be made to determine the uses which can be made of the river without causing the quality to be substandard in the lower basisn?

Mr. MATTHEW. That is right. Now, if studies show that using the major portion of the upper basin apportionment of water by transmountain diversion, which would mean diverting the highest quality waters outside the basin, leaving the more highly mineralized waters for the rest of the users within the basin, including the lower basin, I think that the lower basin rightfully would object if that resulted in a quality of water which could not be used.

What we are saying here is that although the compact is silent on the quality of water, certainly in apportioning water to the two basins, upper and lower basins, it was intended that the water be of good usable quality for both basins.

Mr. RHODES. You think the quality feature is inherent in the Santa Fe compact?

Mr. MATTHEW. Yes; we believe it is implicit.

Mr. RHODES. What about the Mexican water treaty? Is there anything provided in the Mexican water treaty as to the quality of water to be delivered to Mexico?

Mr. MATTHEW. It is very interesting that you should bring that up because it was the subject of great debate during the hearings on the Mexican treaty. It was alleged by witnessess of the Department of State of our Government, and perhaps some others, that Mexico would have to take any kind of water that we delivered down at the boundary.

And the Mexican negotiators denied that that should be so; and contended they were entitled to as good quality as the users in the United States.

Now that is a very important thing because some return flows from projects are very heavily saline, and Mexico probably would protest very vigorously if the water delivered to it was so high in saline content it was not properly usable for irrigation or other uses.

Mr. RHODES. But there is no legal obligation spelled out in the Mexican water treaty concerning the quality of water; is there?

Mr. MATTHEW. The Mexican Government believes there is an obligation as stated by their negotiators.

Mr. RHODES. They think it is inherent in the treaty?

Mr. MATTHEW. Yes, sir; that is correct.

Mr. RHODES. And you feel the compact has the same feature?

Mr. MATTHEW. That is correct.

Mr. D'EWART. You are speaking with reference to salts, not silt; is that right?

Mr. MATTHEW. Yes, I am talking about mineral content.

Mr. SAYLOR. Mr. Matthew, at least as far as I am concerned, this is the first time I have ever heard anything with regard to the Colorado River compact requiring anything of the quality of the water. Now, what you are trying to say is, as a representative of the lower basin States, even though they never mentioned anything about it. they can now come back in and insist that the upper basin States deliver a quantity of water which is suitable to the lower basin States?

Mr. MATTHEW. That is correct.

Mr. SAYLOR. I would just like to have you tell me under what theory you arrive at that conclusion. Where, or under what precedent do you find the States of California and Arizona and New Mexico and Nevada have a right to demand anything with regard to the quality of the water?

Mr. MATTHEW. I am not prepared to argue the legal aspects of this position, but nevertheless I can say——

Mr. SAYLOR. In other words, this is just to put us on notice that in the future California is going to read into the compact something that does not appear there?

Mr. MATTHEW. No, sir; I do not believe that is quite a fair statement because we think that it is in there, although not expressly in the word "quality."

Mr. SAYLOR. I am convinced you can take the Colorado River compact and read it from beginning to end and cannot find anything in there that says anything about the quality of the water. Is that correct?

Mr. MATTHEW. No, sir; that is not exactly correct. I believe it is article VIII of the compact, which says that present perfected rights shall be unimpaired.

Now, certainly with respect to those rights which were perfected at the time of the compact, nothing could be done that would impair those rights, including quality.

It is simply our position that also relates to all of the water. Obviously, the water apportioned to the lower basin by the compact would have to be water that could be used. The upper basin would want it that way, too.

Mr. ASPINALL. Of course, Mr. Matthew, you understand that the waters referred to in the Fryingpan-Arkansas are such a small amount and they come at a time of the year when the quality of the water in the lower basin States could not possibly be affected by this period.

In other words, this is July, August, and September water that goes over to eastern Colorado from this diversion, and at that time of the year at Grand Junction you can usually walk across the river without getting the soles of your feet wet. You understand that?

Mr. MATTHEW. Yes; I see what you are talking about. But may I call your attention to the fact that the use of these waters downstream has to be done very largely through storage. So that you are storing the waters for a whole year and mixing them all up, and the resulting quality is the quality which is a mixture of 12 months of water from all sources.

Mr. ASPINALL. Off the record.

(Discussion was had outside the record.)

Mr. HARRISON. Proceed, Mr. Matthew.

Mr. MATTHEW. It is estimated in the report that, under project operation, return flow in excess of 40 percent of headgate diversion may be expected. With such expectancy it appears possible that return flow from the Colorado River water diverted at canal headgates might escape past the Colorado State boundary unless carefully controlled. Such escape beyond the boundaries of an upper basin State of any Colorado River system water would constitute a violation of the provisions of the Colorado River compact.

It is the position of the Colorado River Board of California that, should the proposed project be authorized by the Congress, the legislation should contain suitable language requiring the State of Colorado to give adequate assurances that any water exported from the Colorado River system to the Arkansas River Basin will be consumptively used in Colorado, and to be responsible for controlling the return flow and preventing the escape of any Colorado River system water outside the State.

I might remark there that I believe I saw a news release a year or so ago with a statement by Judge Clifford Stone practically to this effect: notifying Kansas and notifying the people in Colorado that that situation would have to be controlled. So that I do not think there is any question about that.

I want to thank you, Mr. Chairman, and members of the committee, for allowing me the privilege of appearing here on behalf of the board to present this statement.

Mr. RHODES. Might I ask a question, Mr. Chairman?

Mr. D'EWART (presiding). Mr. Rhodes.

Mr. RHODES. Mr. Matthew, on page 5 of your prepared statement, the last paragraph—

> It is the position of the Colorado River Board of California that the Colorado River compact under the apportionment made by article III(a) entitles the upper basin to the beneficial use of 7,500,000 acre-feet.

As I gather from your statement, it would be your position that this water which is transported across the mountains, of course, is charged 100 percent as used because there is no return flow in the system. Is that right?

Mr. MATTHEW. That is correct.

Mr. RHODES. And part of the base of your opposition, then, is due to the fact there were no return flows. Am I quoting you correctly there?

Mr. MATTHEW. No, sir; this relates in part to the matter of principle, which involves interpretation of the compact. It is simply

this: That we believe that when the apportionment is made under the compact of 7,500,000 acre-feet per annum, that that means 7,500,000 acre-feet as a maximum in any one year.

Mr. RHODES. You mean that the upper basin may use that much in 1 year?

Mr. MATTHEW. Yes, sir.

Mr. RHODES. In other words, the upper basin has two duties: It has the duty to deliver 8½ million acre-feet to the lower basin at Lee Ferry; and the second duty is not to use over 7½ million acre-feet in the upper basin?

Mr. MATTHEW. I want to correct you on your first one. Their obligation under article III (d) is to deliver at Lee Ferry, or not to cause the flow at Lee Ferry to be reduced below 75 million acre-feet in any 10 consecutive years, and that means any series of 10 consecutive years.

Now, under article III (a) the upper basin is apportioned 7,500,000 acre-feet per annum for beneficial consumptive use.

Mr. RHODES. So actually they have two duties.

Mr. MATTHEW. So they have that perpetual right to use that water. If it so happened that the use of the 7,500,000 acre-feet per annum under their apportionment made it impossible for them to meet their covenant under III (d), I should imagine that they would have to cut down. But, however, all the records indicate that that would not happen.

Mr. RHODES. You said 7½ million, and the compact calls for 8½ million to the lower basin. Where does the other million acre-feet come from?

Mr. MATTHEW. No; I did not mention 8½ million.

Mr. RHODES. No, I did, though.

Mr. MATTHEW. Yes.

Mr. RHODES. III (a) and III (b) added together add up to 8½ million feet.

Mr. MATTHEW. I see what you mean. That is under article III (b).

Mr. RHODES. III (a) and III (b) together.

Mr. MATTHEW. Right. That is true. The lower basin is given the right to that amount.

Mr. RHODES. Where does the other million come from? The upper basin only has to deliver 7½ million.

Mr. MATTHEW. The flow at Lee Ferry would have to be sufficient as a minimum to take care of the 75 million acre-feet in any 10 years. Now if the million acre-feet is not there for the lower basin to increase its use, it would be just too bad. But articles III (a) and III (b) of the compact relate to system waters and not just the flow at Lee Ferry.

Mr. RHODES. I thought that would probably be your answer. Thank you.

Mr. SAYLOR. I am a little exercised about this million and a half acre-feet that we deliver to Mexico, and now your question of quality being raised, because if the contention of Mexico is correct, in that they are entitled to usable water, then the figures which have been referred to here in this interim report to the secretary under Colorado River, House Document 419, it might be necessary to deliver a great deal more than a million and a half acre-feet to Mexico to take care of good water. Is that correct?

Mr. MATTHEW. That is correct.

Mr. SAYLOR. Then the charges that would be made upon the river would be made proportionately in the amount of water, that is, divided between the upper basin and the lower basin; is that correct?

Mr. MATTHEW. That is correct.

Mr. SAYLOR. So that the potential which has been included here of——

Mr. ASPINALL. While he is looking for that, may I make an observation?

What is delivered at Lee Ferry, if it is sufficient to take care of California's wishes, then most certainly the water delivered at Lee Ferry for Mexico would be practically the same quality. Therefore, you have nothing to worry about on the quality above Lee Ferry. It is what California and the lower Basin States do to it after it gets below Lee Ferry.

Mr. D'EWART. I was going to comment that this whole discussion is more or less academic, because the last time I visited the dam, the improvement of the quality of the water in the Colorado River was amazing over a few years ago.

Mr. MATTHEW. It is a beautiful clear stream now, that is true, as far as silt is concerned.

Here again, I think in response to a question I tried to make it clear that I was talking about the mineral contents of the water. I believe you spoke of that.

The average content now of the water at Lee Ferry, I believe, is about 1 ton per acre-foot of salts. And there are some estimates that the quality of the water may deteriorate to the extent of about 50 percent, 1½ tons per acre-foot. Some have gone higher than that. What happens will depend a great deal on how the water is used.

Mr. SAYLOR. I have found the figure now, Mr. Matthew. According to table 121, the total ultimate depletion of the Colorado River is 20,197,200 acre-feet. Now, as was testified to here by the engineers from Colorado, that is a great deal more than now flows down the river. I want to know if this question of quality comes into it, how many more million acre-feet we are going to have to put in here to take care of it.

Mr. MATTHEW. Do you want me to answer that question?

Mr. SAYLOR. Yes, because, while it may be academic, certainly if it becomes necessary to make the water usable, we are going to have to take less water out of the stream. Is that correct?

Mr. MATTHEW. Yes; that is correct.

I might say, in the first place, that what Mr. Tipton told the committee is absolutely correct with respect to this report. It is an inventory of projects and an estimate of corresponding water requirements. And the total estimated requirements in this table is at least 25 percent more than available water supply. So that it is merely an overall inventory of potentialities.

Mr. SAYLOR. In view of the fact that the quality of the water hereafter might be an item to be considered, we might serve notice on the Bureau of Reclamation it had better brush itself up a little bit on the quality of water that is going to be taken out of the Colorado River or remains in the Colorado River.

Mr. MATTHEW. We are very much in earnest about this problem, and have urged that investigations be made, the establishment of

quality of water sampling stations at different points in the basin, and then a very detailed study and analysis of what might be the effect of different types of development. And particularly we call attention in this statement, very briefly, that diversion of water across the mountains out of the basin, the purest water melting from the snows, might have very serious effect as compared to using the water in the basin itself.

Mr. SAYLOR. Let me ask you this question, Mr. Matthew: Suppose the upper basin States in an overall plan, without any further transmountain diversion, agreed to put to beneficial use 7½ million acre-feet of water, and as a result of that the water at Lee Ferry becomes increasingly saline. What will the position of the lower basin States be?

Mr. MATTHEW. It is quite probable that the water will become more saline in any development of the upper basin. We are only concerned that it does not get so saline that it will be of no use for water to be apportioned to the lower basin at all. In other words, that it would not be usable.

Mr. SAYLOR. Have the lower basin States agreed, or have their engineers or chemists agreed, as to when water becomes so saline that it is unusable for irrigation or for minicipal use?

Mr. MATTHEW. No; there has not been any get-together on that so far. The matter is under study. There are certain definite criteria as to how much salt you can have in water for irrigation for different kinds of crops.

Mr. D'EWART. I think I should say, Mr. Matthew, there has been a lot of experimental work in regard to how different types of crops stand saline solutions, and many types will stand more than others, and some will take practically none.

Mr. MATTHEW. Pardon me. That is what I was just about to relate. The first of my answer related to whether the engineers in the lower basin have gotten together. I mean there has been no meeting of engineers down there in the lower basin.

But there are criteria for quality of water which different crops can stand under different soil conditions, and under different drainage conditions, and they vary quite a bit.

You have the problem always of the amount of salt brought into an irrigated area. That salt has got to be taken out some way in the drainage water, else the project will go alkali and soon become unproductive.

Mr. SAYLOR. Then we come down to the stage of determining whether or not the water should be treated before it is used, and that should certainly be one of the fields if quality of water is going to become increasingly important in the future.

Mr. MATTHEW. The water is treated for domestic use.

Mr. SAYLOR. For domestic use, but I mean for treatment on the elimination of salt.

Mr. MATTHEW. It is a possibility in the future.

Mr. SAYLOR. That is all.

Mr. D'EWART. Thank you, Mr. Matthew, for your contribution.

Mr. MATTHEW. Thank you again for the opportunity.

Mr. D'EWART. Judge, do you have anything else?

Mr. CHENOWETH. We have one more witness, Mr. Chairman.

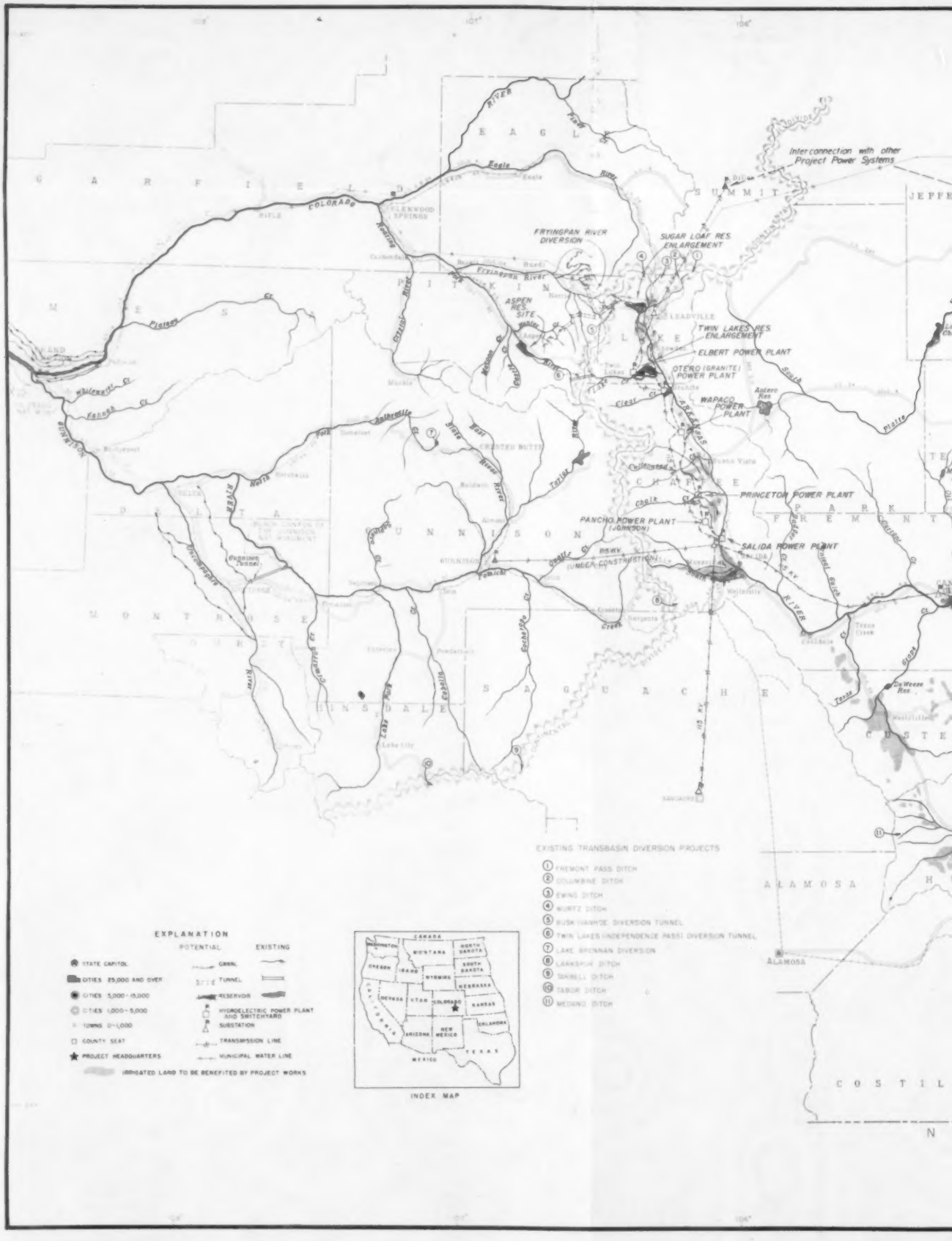
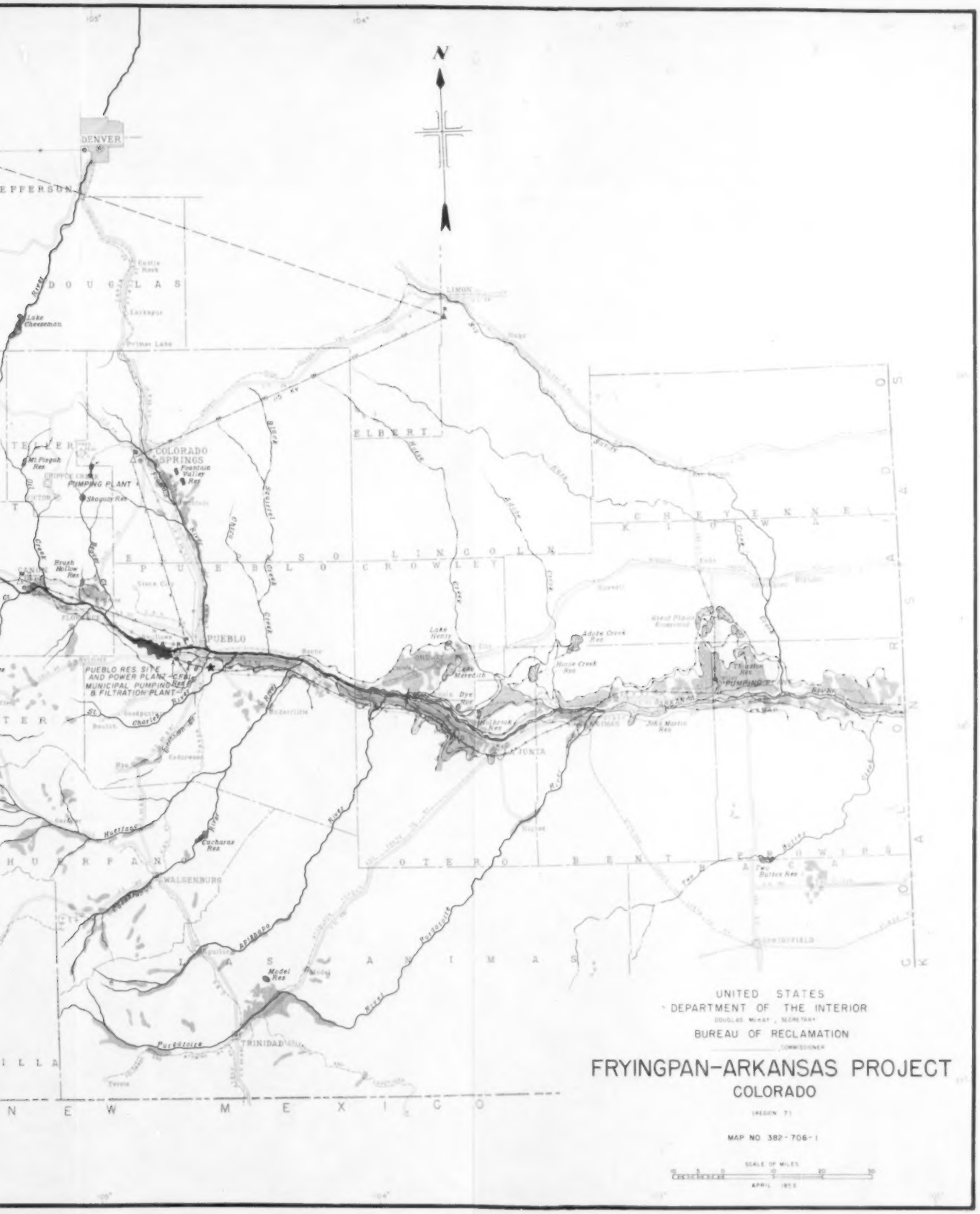

Interconnection with other Project Power Systems
FRYINGPAN RIVER DIVERSION
SUGAR LOAF RES. ENLARGEMENT
ASPEN RES. SITE
TWIN LAKES RES. ENLARGEMENT
ELBERT POWER PLANT
OTERO (GRANITE) POWER PLANT
WAPACO POWER PLANT
PRINCETON POWER PLANT
PANCHO POWER PLANT (JOHNSON)
SALIDA POWER PLANT
UNDER CONSTRUCTION
EXISTING TRANSBASIN DIVERSION PROJECTS
1 FREMONT PASS DITCH
2 COLUMBINE DITCH
3 EWING DITCH
4 MUNTZ DITCH
5 BUSK IVANHOE DIVERSION TUNNEL
6 TWIN LAKES INDEPENDENCE PASS DIVERSION TUNNEL
7 LAKE BRENNAN DIVERSION
8 LARKSPUR DITCH
9 BARRELL DITCH
10 TABOR DITCH
11 MEDANO DITCH
EXPLANATION
POTENTIAL
EXISTING
STATE CAPITOL
CITIES 25,000 AND OVER
CITIES 5,000 - 15,000
CITIES 1,000 - 5,000
TOWNS 0 - 1,000
COUNTY SEAT
PROJECT HEADQUARTERS
CANAL
TUNNEL
RESERVOIR
HYDROELECTRIC POWER PLANT AND SWITCHYARD
SUBSTATION
TRANSMISSION LINE
MUNICIPAL WATER LINE
IRRIGATED LAND TO BE BENEFITED BY PROJECT WORKS
INDEX MAP
CANADA
MONTANA
NORTH DAKOTA
SOUTH DAKOTA
WYOMING
NEBRASKA
COLORADO
KANSAS
OKLAHOMA
NEW MEXICO
TEXAS
MEXICO
ARIZONA
NEVADA
UTAH
OREGON
IDAHO
WASHINGTON
CALIFORNIA
ALAMOSA
N

EXHIBIT 1



UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS MCKAY, SECRETARY
BUREAU OF RECLAMATION
COMMISSIONER

FRYINGPAN-ARKANSAS PROJECT
COLORADO

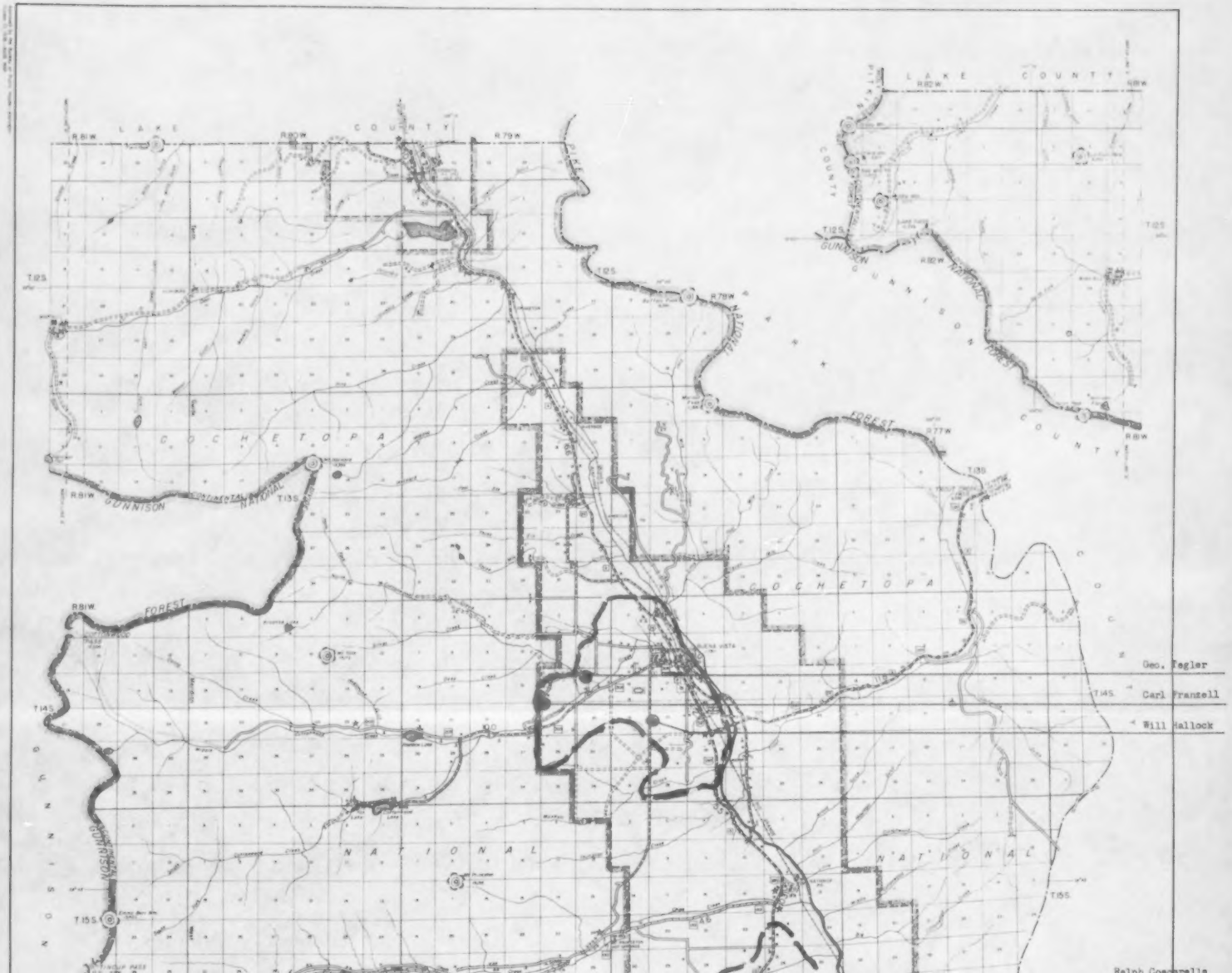
REGION 7

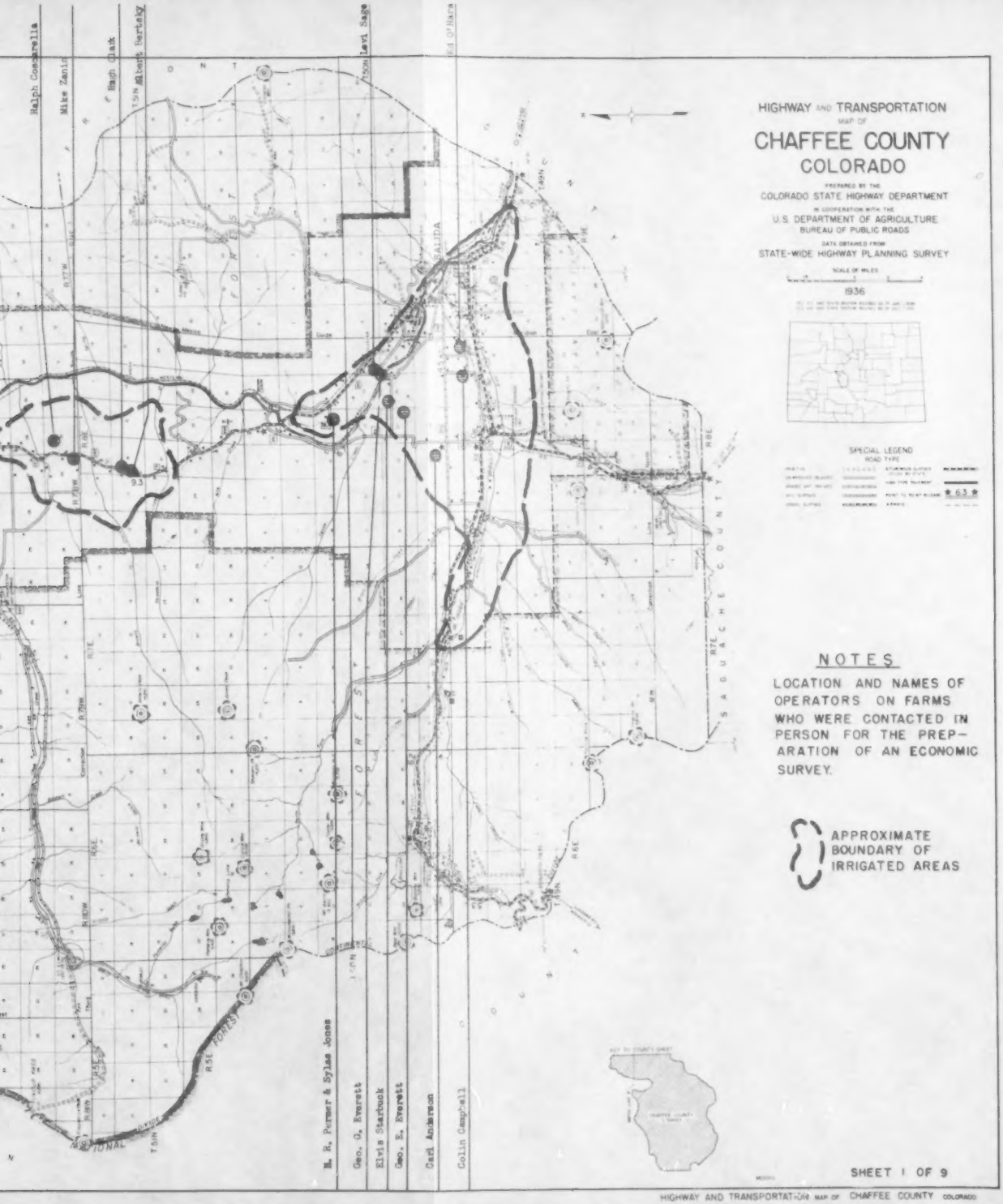
MAP NO. 382-706-1

SCALE OF MILES
10 5 0 10 20 30

APRIL 1953

35002 O - 53


LAKE COUNTY
GUNNISON COUNTY
COCHETOPA
NATIONAL FOREST
GUNNISON
R81W
R80W
R79W
R78W
R77W
T12S
T13S
T14S
T15S
Geo. Pegler
Carl Franzell
Will Hallock
Ralph Cogswell


Ralph Consarella
Mike Zanin
Hugh Clark
Albert Barkely
Levi Sage
Fred O'Hara
SALIDA
SAGUACHE COUNTY
R5E
R6E
R7E
T50N
T49N
T48N
T47N
T15N
T14N
T13N
R77W
R78W
R79W
R80W
R81W
R82W
R83W
R84W
R85W
R86W
R87W
R88W
R89W
R90W
R91W
R92W
R93W
R94W
R95W
R96W
R97W
R98W
R99W
R100W
R101W
R102W
R103W
R104W
R105W
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R108W
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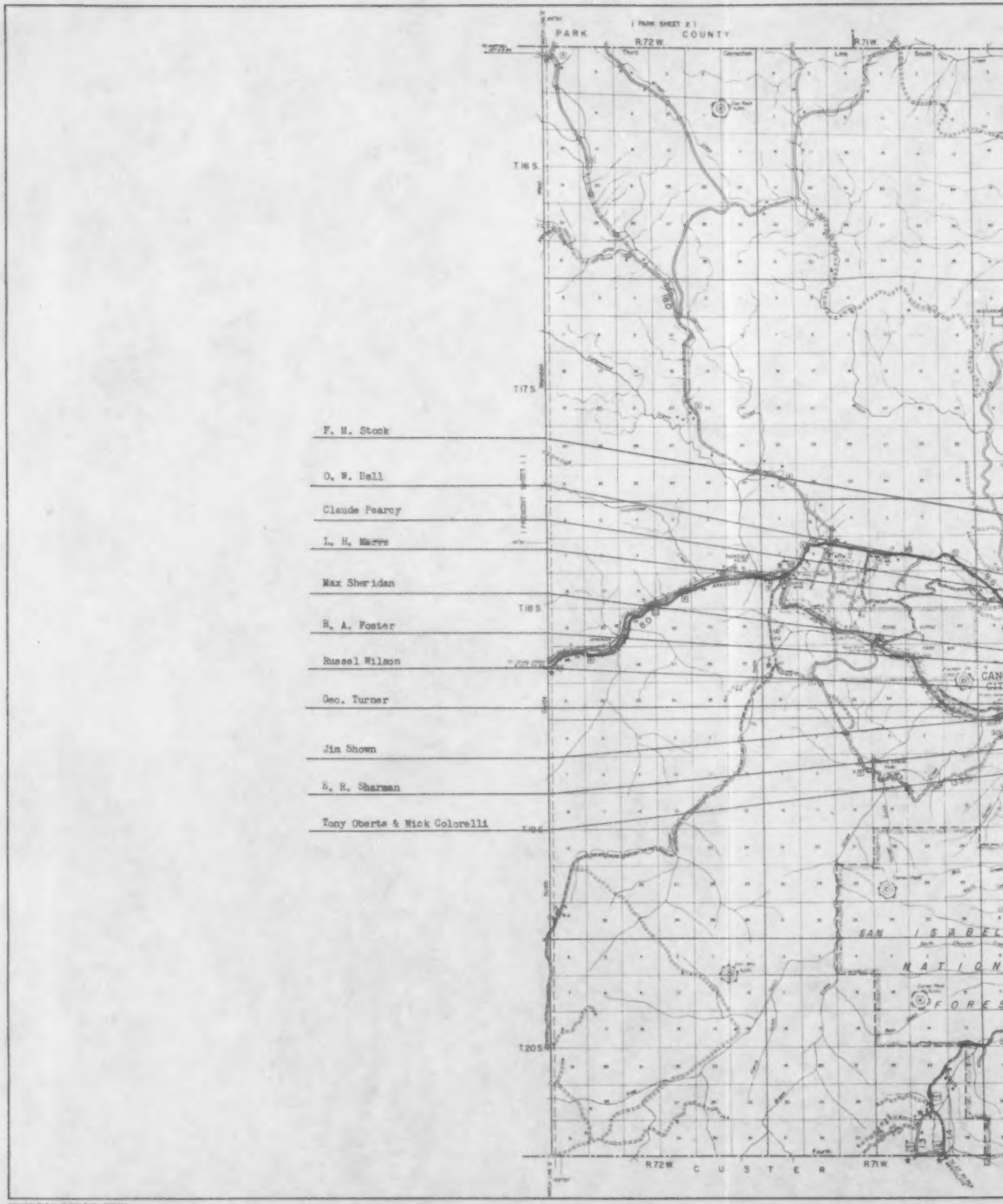
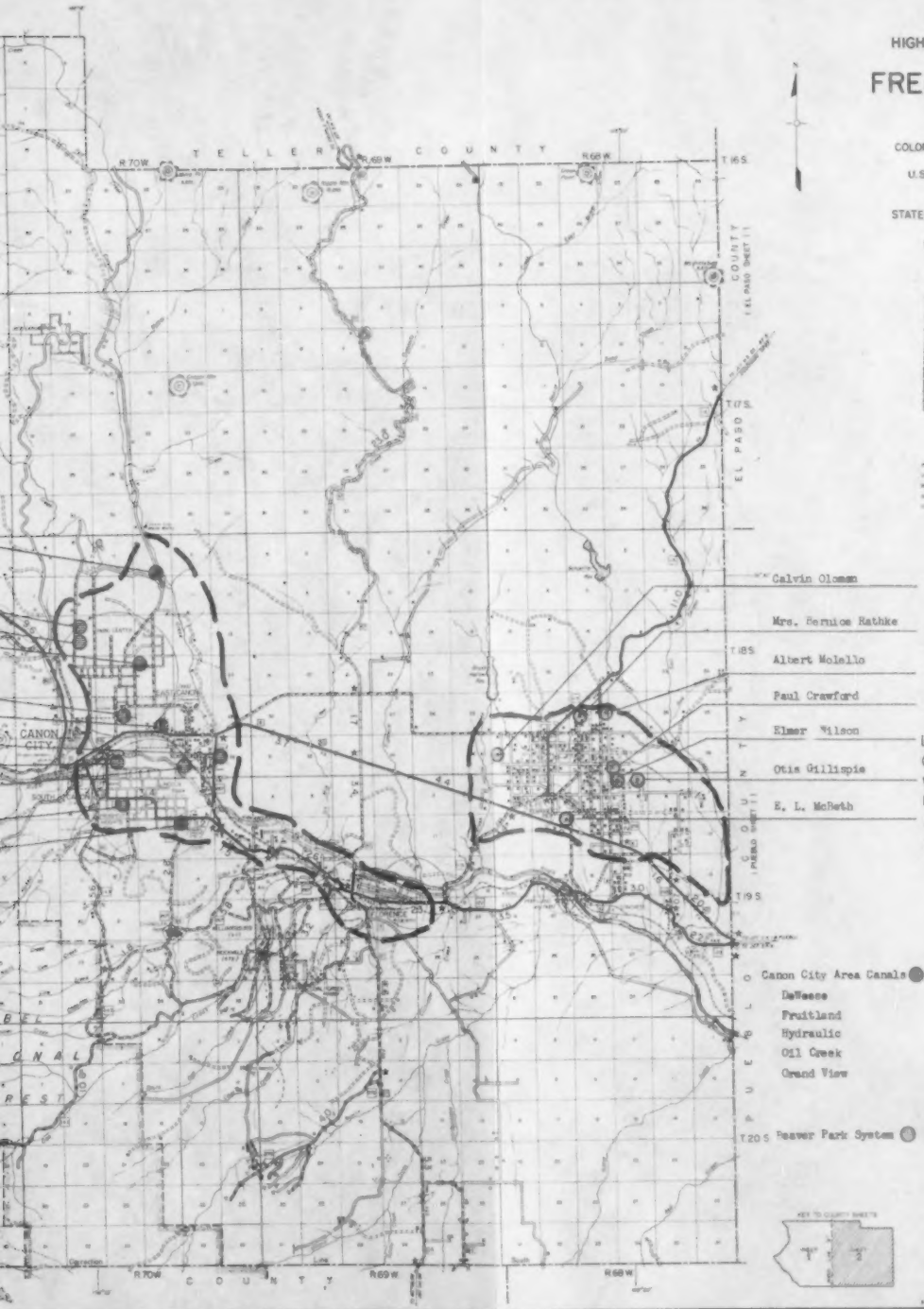
R110W
R111W
R112W
R113W
R114W
R115W
R116W


PARK COUNTY
R72W
R71W
T16S
T17S
T18S
T19S
T20S
F. M. Stock
O. W. Ball
Claude Pearcy
L. H. Mayes
Max Sheridan
H. A. Foster
Russel Wilson
Geo. Turner
Jim Shown
E. H. Sharman
Tony Oberto & Nick Colorelli
R72W
CUSTER
R71W



HIGHWAY AND TRANSPORTATION
MAP OF

FREMONT COUNTY
COLORADO

PREPARED BY THE
COLORADO STATE HIGHWAY DEPARTMENT
IN COOPERATION WITH THE
U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DATA OBTAINED FROM
STATE-WIDE HIGHWAY PLANNING SURVEY

SCALE OF MILES

1936

SPECIAL LEGEND
ROAD TYPE

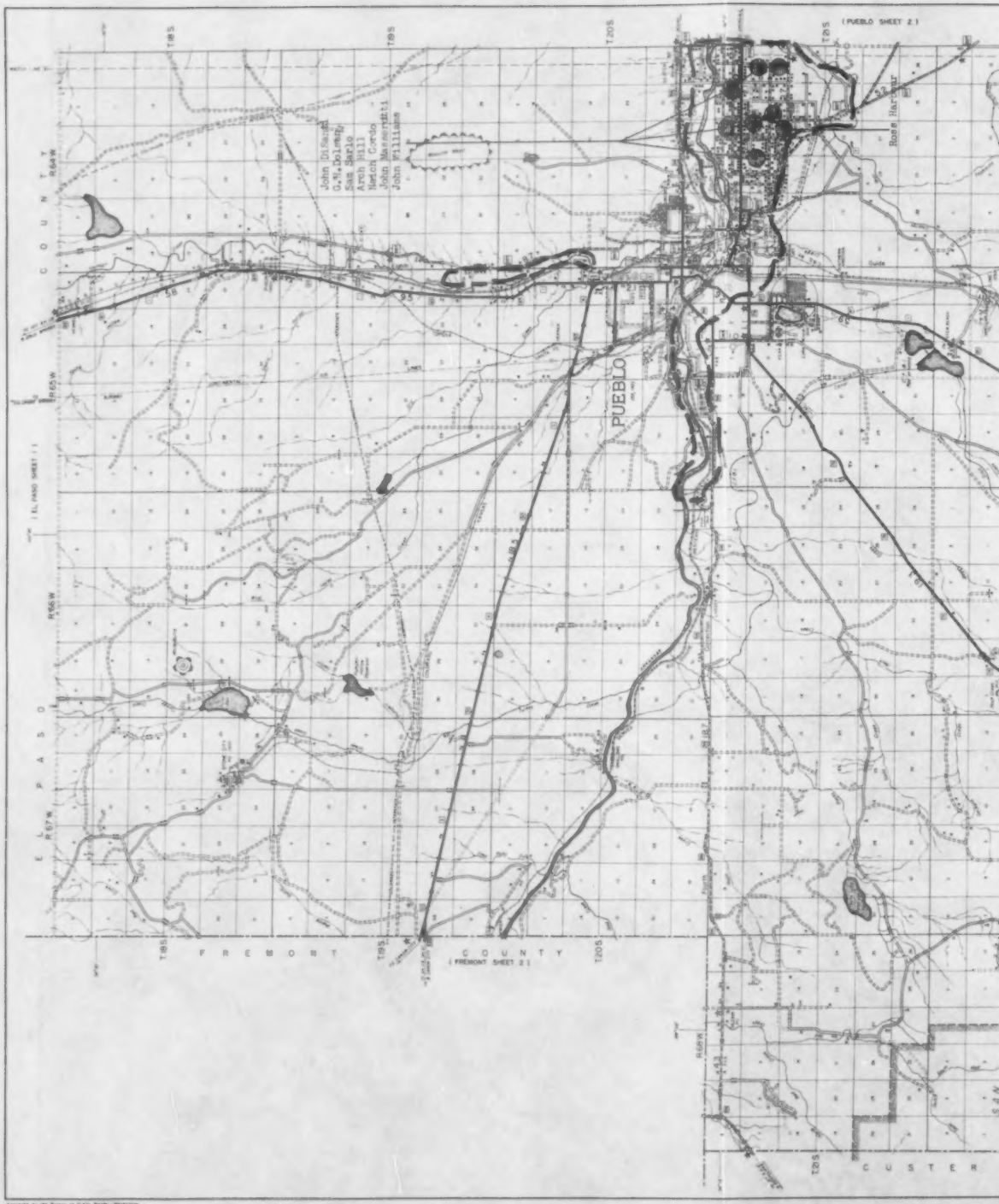
NOTES

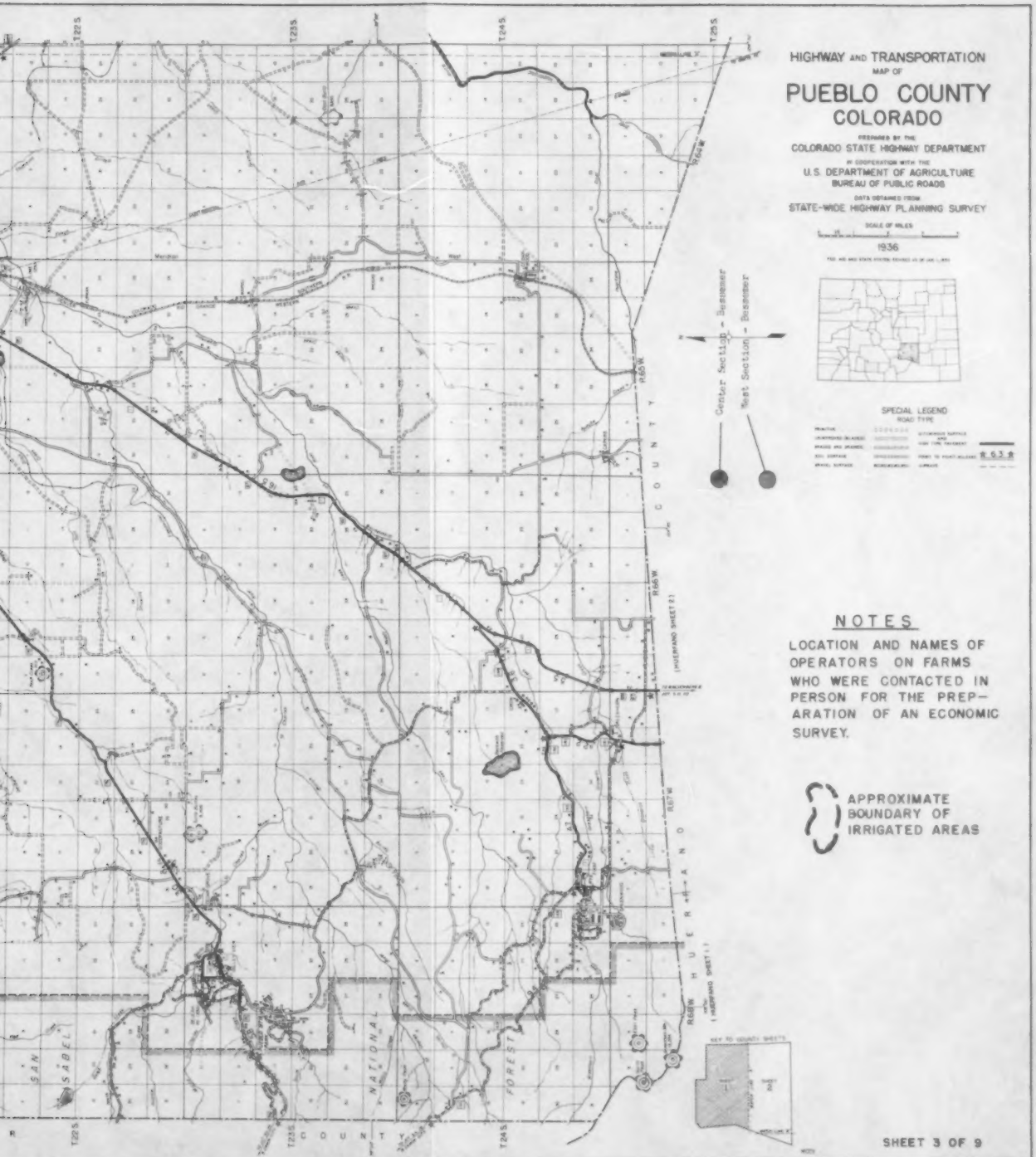
LOCATION AND NAMES OF OPERATORS ON FARMS WHO WERE CONTACTED IN PERSON FOR THE PREPARATION OF AN ECONOMIC SURVEY.

APPROXIMATE BOUNDARY OF IRRIGATED AREAS

SHEET 2 OF 9

35059 O - 53 (Face p. 266) No. 3


(PUEBLO SHEET 2)
T.18S.
T.19S.
T.20S.
R.66W.
R.67W.
COUNTY
EL PASO
(EL PASO SHEET 1)
PUEBLO
Road Reservoir
John Di Sanett
G.W. Dolomb
Arch Mills
Anton Bello
Melon Cardo
John Marenetti
John Phillipsen
F R E M O N T
COUNTY
(FREMONT SHEET 2)
C U S T E R



HIGHWAY AND TRANSPORTATION MAP OF

PUEBLO COUNTY COLORADO

PREPARED BY THE
COLORADO STATE HIGHWAY DEPARTMENT
IN COOPERATION WITH THE
U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DATA OBTAINED FROM
STATE-WIDE HIGHWAY PLANNING SURVEY

SCALE OF MILES

1936

SPECIAL LEGEND
ROAD TYPE

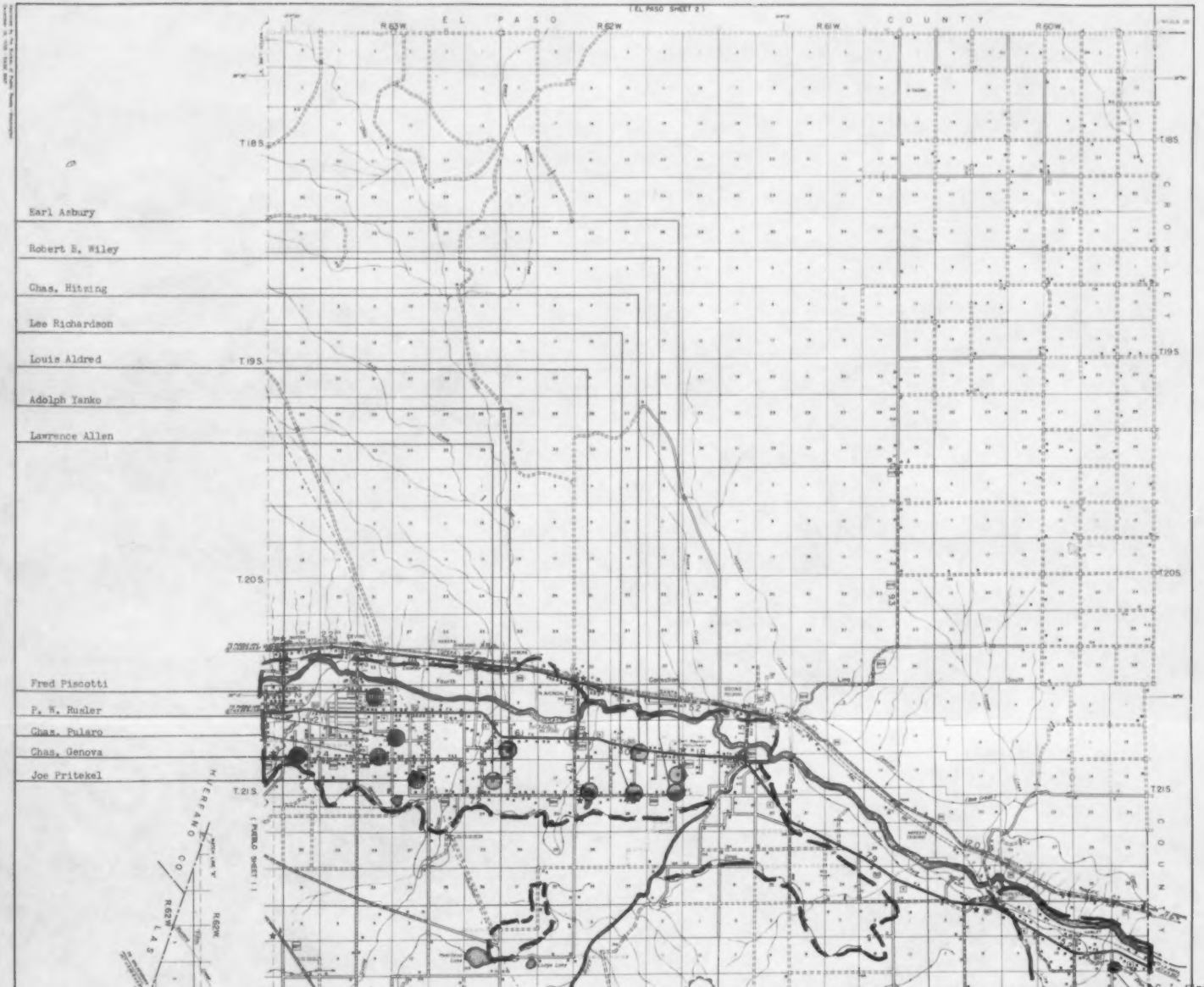
NOTES

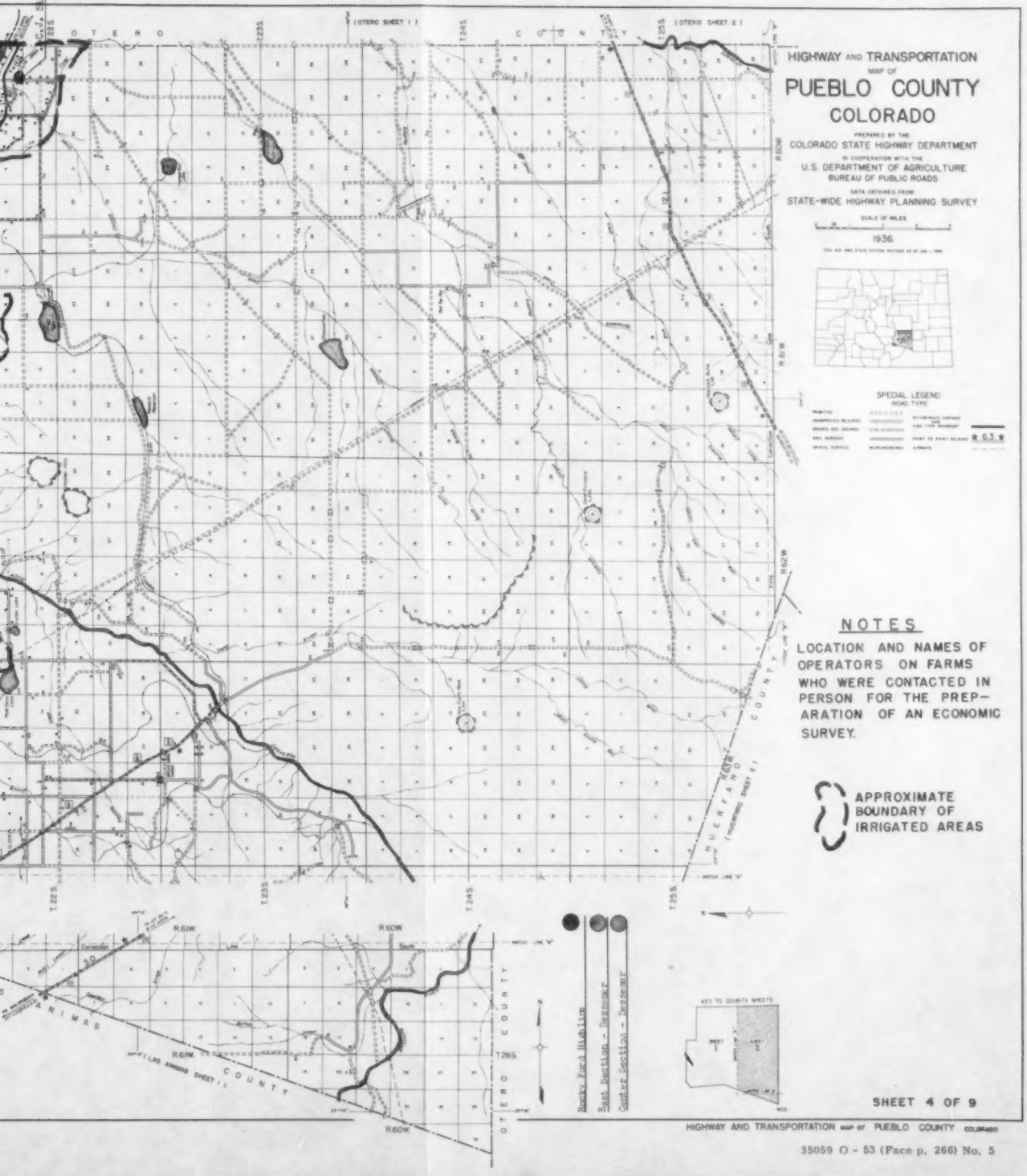
LOCATION AND NAMES OF OPERATORS ON FARMS WHO WERE CONTACTED IN PERSON FOR THE PREPARATION OF AN ECONOMIC SURVEY.

APPROXIMATE BOUNDARY OF IRRIGATED AREAS

SHEET 3 OF 9

35059 O - 53 (Face p. 266) No. 4


EL PASO COUNTY
T.18S.
T.19S.
T.20S.
T.21S.
R.63W.
R.62W.
R.61W.
R.60W.
Earl Asbury
Robert E. Wiley
Chas. Hitzing
Lee Richardson
Louis Aldred
Adolph Yanko
Lawrence Allen
Fred Piscotti
P. W. Rusler
Chas. Pularo
Chas. Genova
Joe Pritekel
HUERFANO CO.
LAS ANIMAS CO.
PUEBLO COUNTY
EL PASO SHEET 21
PUEBLO SHEET 11



HIGHWAY AND TRANSPORTATION MAP OF PUEBLO COUNTY COLORADO

PREPARED BY THE
COLORADO STATE HIGHWAY DEPARTMENT
IN COOPERATION WITH THE
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BUREAU OF PUBLIC ROADS
DATA OBTAINED FROM
STATE-WIDE HIGHWAY PLANNING SURVEY

SCALE OF MILES

1936

SPECIAL LEGEND
ROAD TYPE

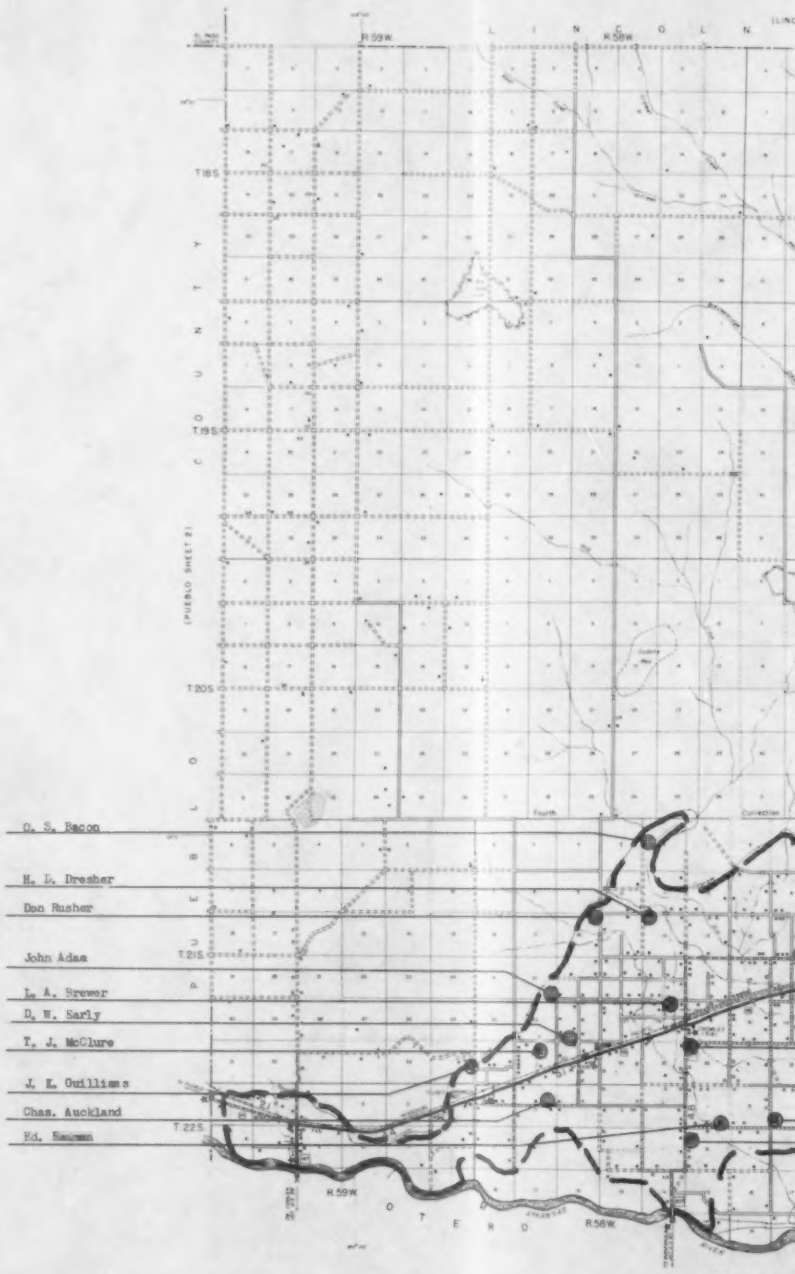
NOTES

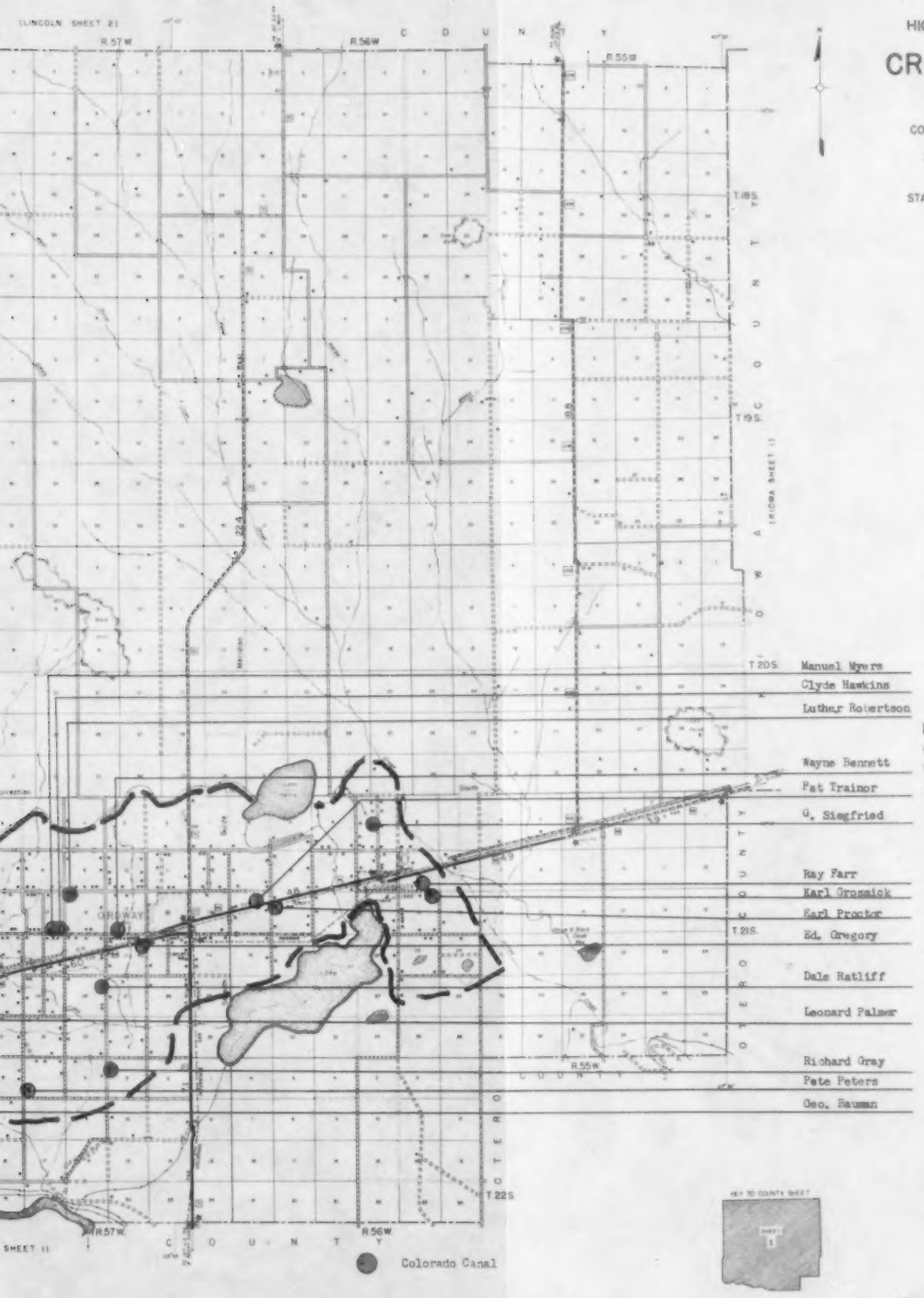
LOCATION AND NAMES OF OPERATORS ON FARMS WHO WERE CONTACTED IN PERSON FOR THE PREPARATION OF AN ECONOMIC SURVEY.

APPROXIMATE BOUNDARY OF IRRIGATED AREAS

SHEET 4 OF 9

35059 O - 53 (Face p. 266) No. 5


R.59W.
R.58W.
T.18S.
T.19S.
T.20S.
T.21S.
T.22S.
(PUEBLO SHEET 2)
(OTERO SHEET
C. S. Bacon
H. L. Dresher
Don Rusher
John Adas
L. A. Brewer
D. W. Early
T. J. McClure
J. E. Guilliams
Chas. Auckland
Ed. Sampson



HIGHWAY AND TRANSPORTATION MAP OF CROWLEY COUNTY COLORADO

PREPARED BY THE
COLORADO STATE HIGHWAY DEPARTMENT
IN COOPERATION WITH THE
U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DATA OBTAINED FROM
STATE-WIDE HIGHWAY PLANNING SURVEY

SCALE OF MILES

1936

SPECIAL LEGEND
ROAD TYPE

T 20 S.
Manuel Myers
Clyde Hawkins
Luther Robertson
Wayne Bennett
Pat Trainor
G. Siegfried
Ray Farr
Karl Grossnick
Karl Proctor
T 21 S.
Ed. Gregory
Dale Ratliff
Leonard Palmer
Richard Gray
Pete Peters
Geo. Bauman

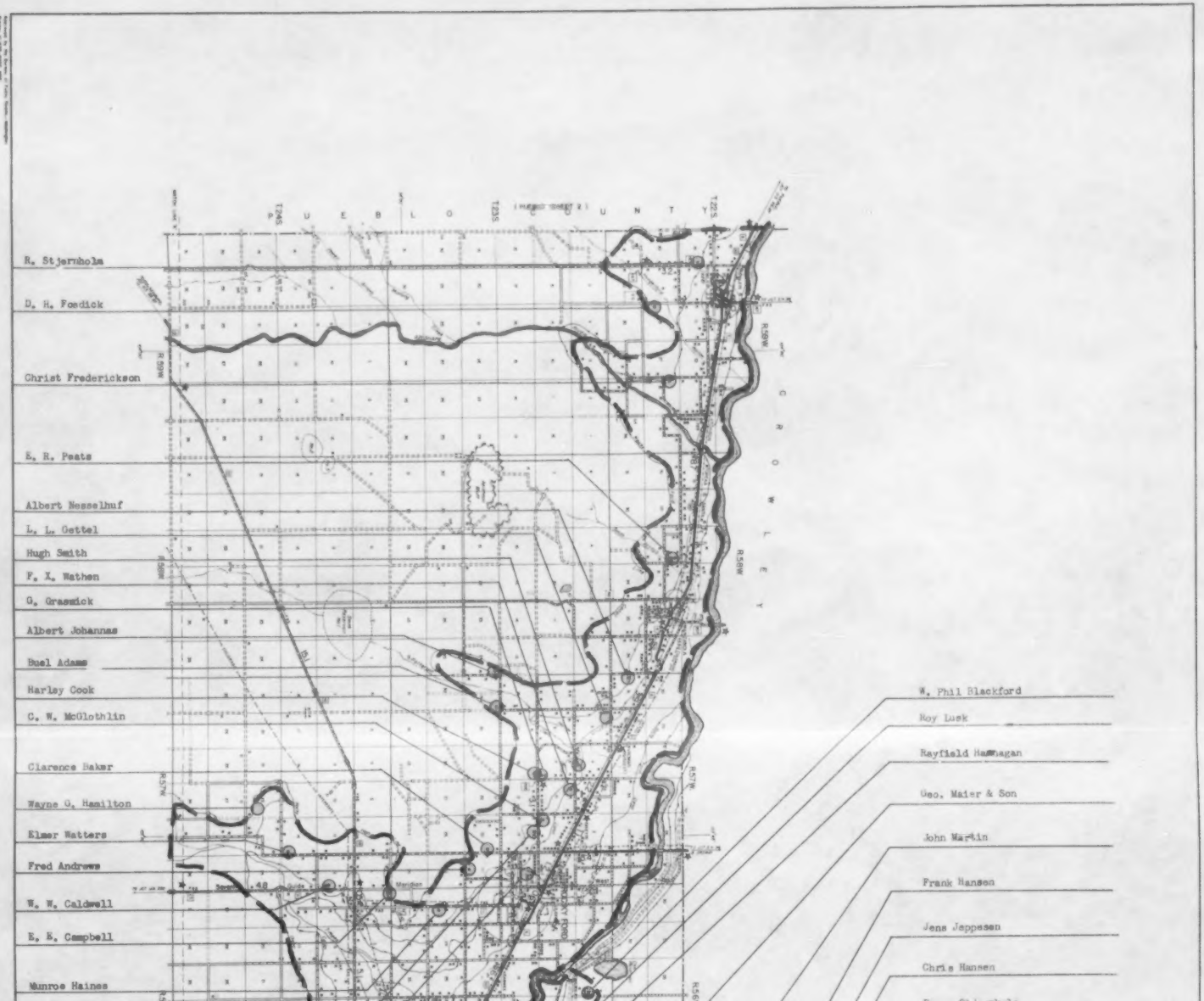
NOTES

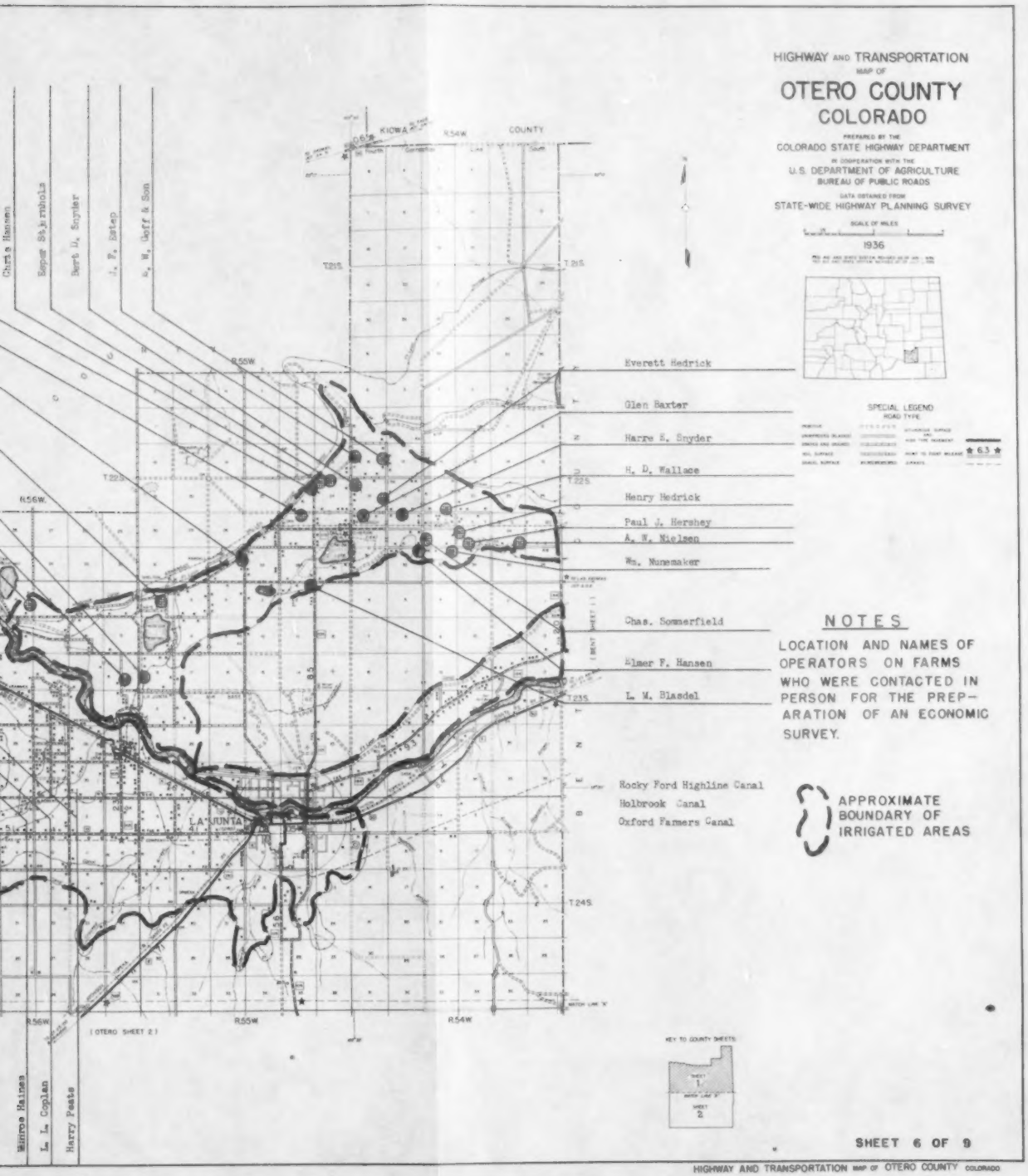
LOCATION AND NAMES OF OPERATORS ON FARMS WHO WERE CONTACTED IN PERSON FOR THE PREPARATION OF AN ECONOMIC SURVEY.

APPROXIMATE BOUNDARY OF IRRIGATED AREAS

SHEET 5 OF 9

35059 O - 53 (Face p. 266) No. 6


PUEBLO COUNTY
R. Stjernholm
D. H. Fosdick
Christ Frederickson
E. R. Peats
Albert Nesselhuf
L. L. Gettel
Hugh Smith
F. X. Wathen
G. Grassmick
Albert Johannas
Buel Adams
Harley Cook
C. W. McGlothlin
Clarence Baker
Wayne G. Hamilton
Elmer Watters
Fred Andrews
W. W. Caldwell
E. E. Campbell
Munroe Haines
W. Phil Blackford
Roy Lusk
Rayfield Hannagan
Geo. Maier & Son
John Martin
Frank Hansen
Jens Jeppesen
Chris Hansen
T22S
T23S
R65W
R64W
R63W
R62W



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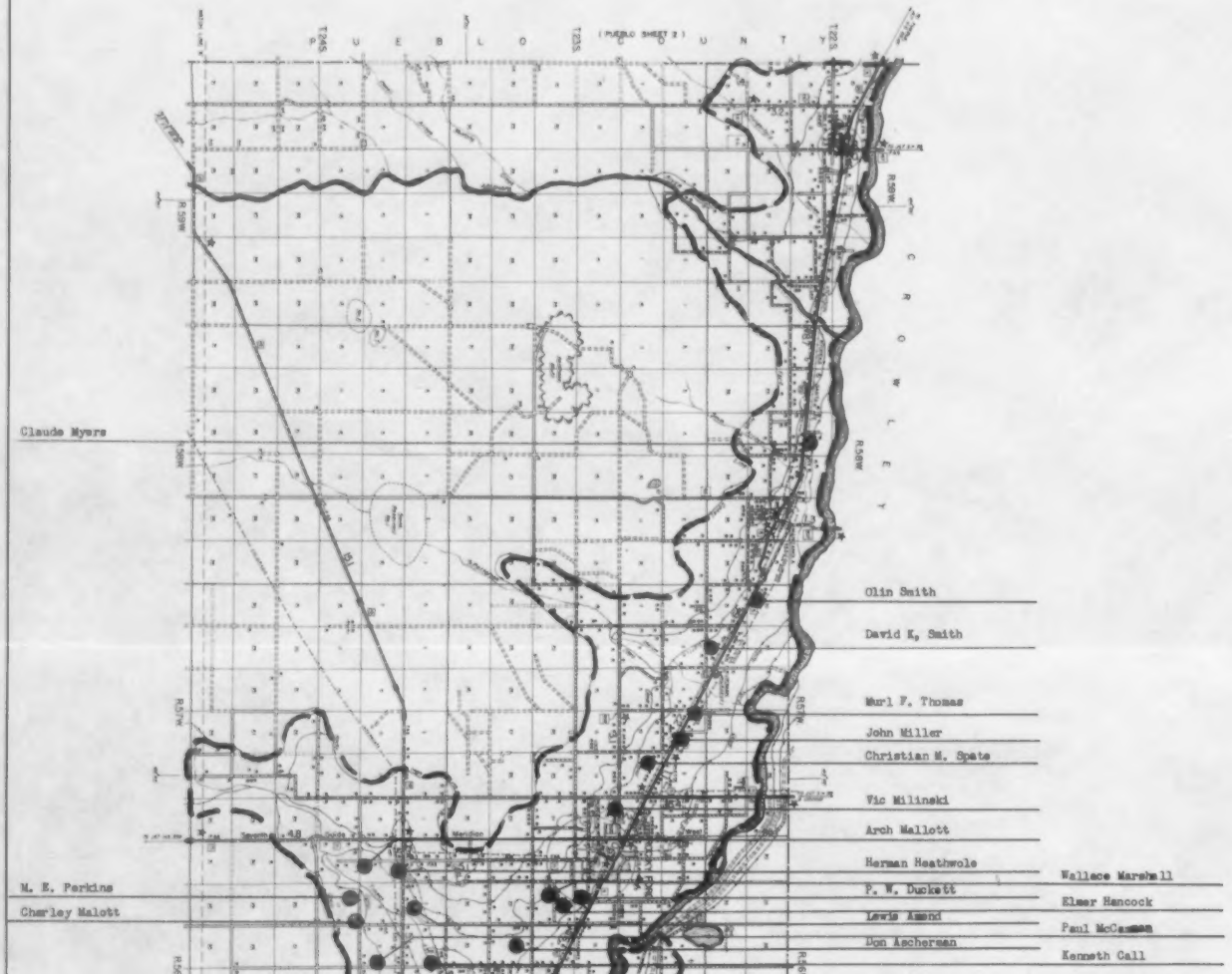
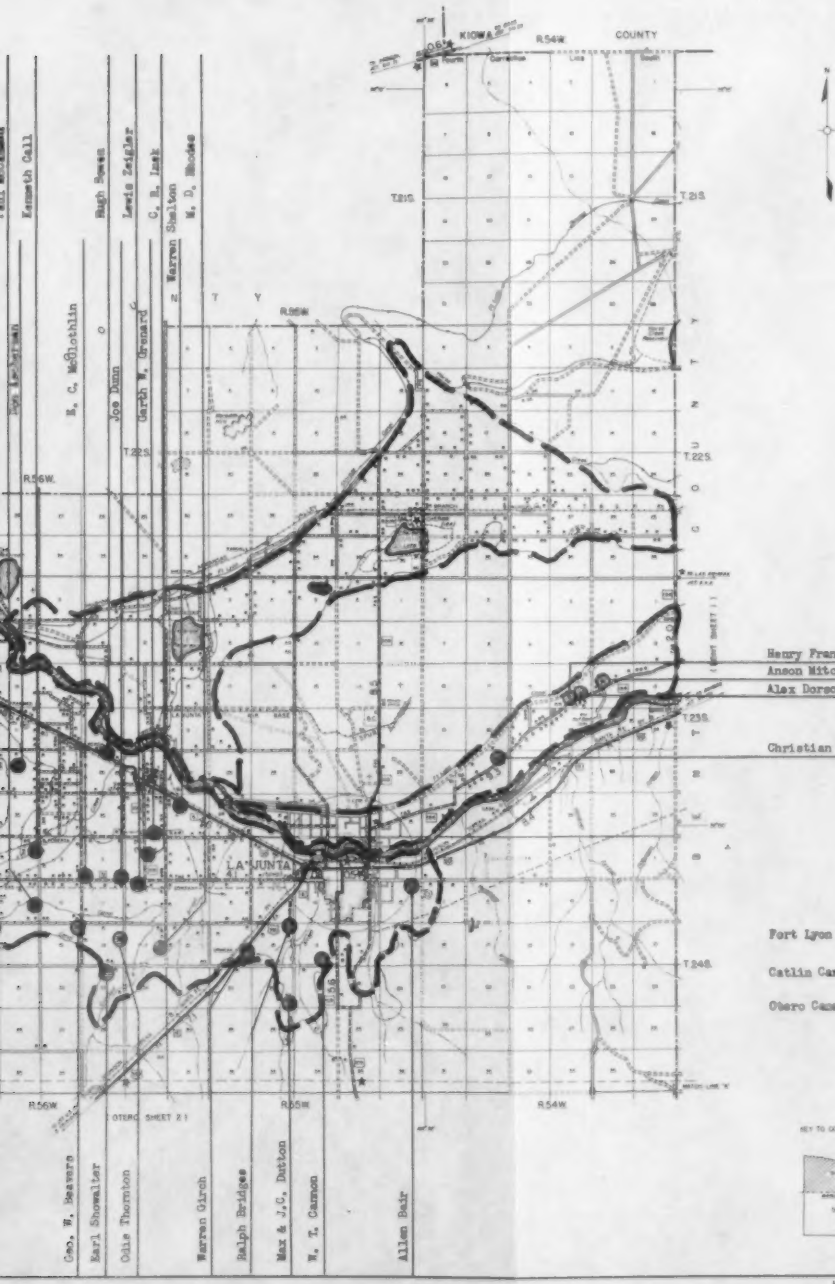

PUEBLO COUNTY
(PUEBLO SHEET 2)
T24S
T23S
R65W
R64W
R63W
Claude Myers
Olin Smith
David K. Smith
Murl F. Thomas
John Miller
Christian M. Spate
Vic Milinski
Arch Mallott
Herman Heathwole
F. W. Duckett
Lewis Amend
Don Aschermann
M. E. Perkins
Charley Malott
Wallace Marshall
Elmer Hancock
Paul McCammon
Kenneth Call



HIGHWAY AND TRANSPORTATION MAP OF

OTERO COUNTY COLORADO

PREPARED BY THE COLORADO STATE HIGHWAY DEPARTMENT IN COOPERATION WITH THE U.S. DEPARTMENT OF AGRICULTURE BUREAU OF PUBLIC ROADS

DATA OBTAINED FROM STATE-WIDE HIGHWAY PLANNING SURVEY

SCALE OF MILES

1936

SPECIAL LEGEND
ROAD TYPE

PRIMITIVE
IMPROVED (GRAVEL)
MIXED AND GRADED
WELL SURFACE
PAVED SURFACE
INTERMEDIATE SURFACE AND HIGH TYPE PAVEMENT
PAVED TO POINT INDICATED ★ 6.3 ★
AIRPORTS

Henry Frank
Anson Mitchell
Alex Dorsch
Christian Wunch

NOTES

LOCATION AND NAMES OF OPERATORS ON FARMS WHO WERE CONTACTED IN PERSON FOR THE PREPARATION OF AN ECONOMIC SURVEY.

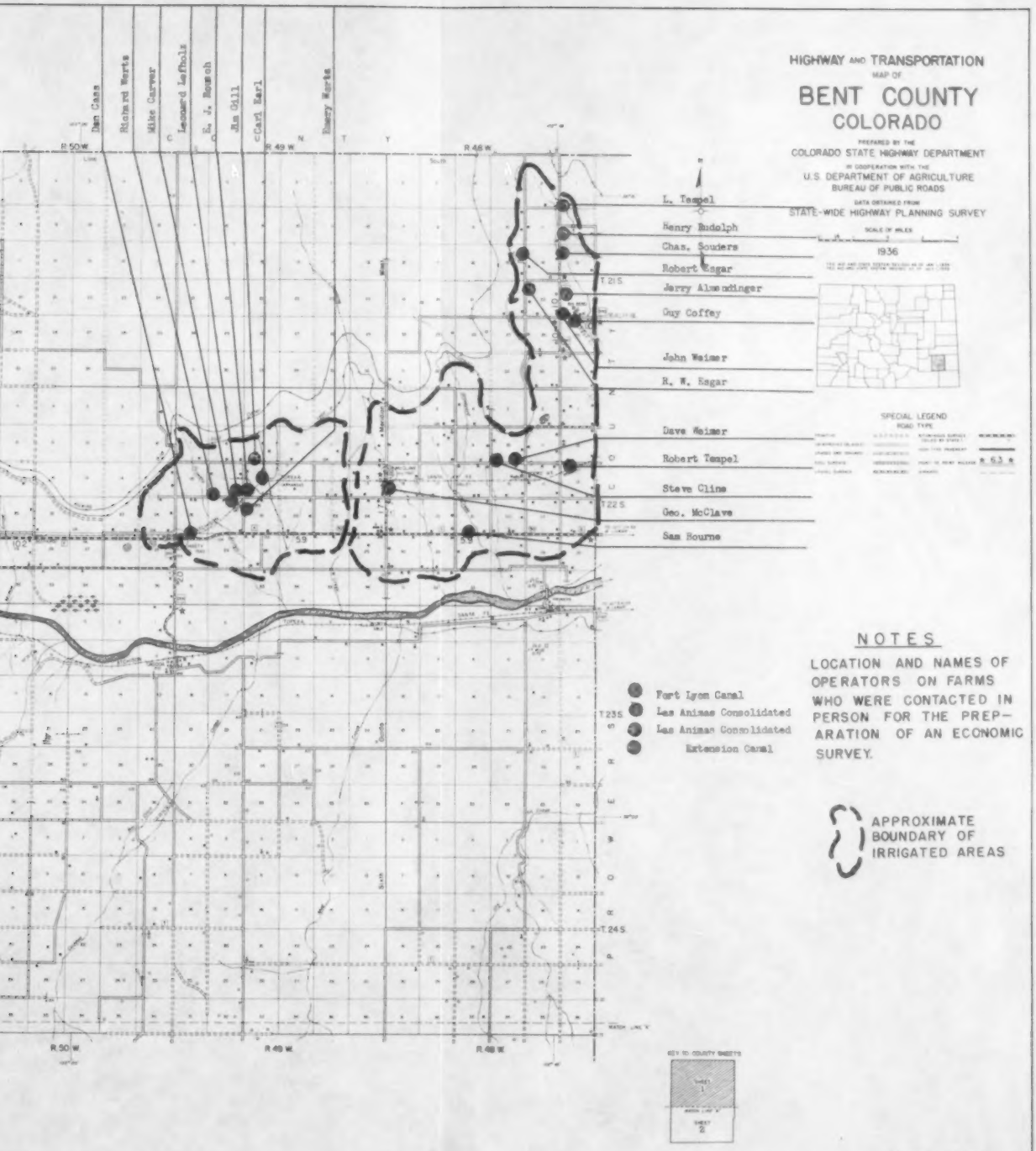
APPROXIMATE BOUNDARY OF IRRIGATED AREAS

Fort Lyon Canal
Catlin Canal
Otero Canal

HIGHWAY AND TRANSPORTATION MAP OF OTERO COUNTY COLORADO

35059 O - 53 (Face p. 268) No. 8

Don Klusman
Harry Micklos
Henry Manifer
Eugene Holtz
Harry Blackburn
Ed. Wilkins
Tom Ramsey
Arthur Young
Claud Wilson
Bruce Purvis
Clarence Retchloff
L. Morgan
Edgar Ford
A. J. Berry
Herb Stevens
Tom Miles
Ed. Syring
Archie Thaxton
Charlie Peck
M. L. Shinn
William A. Price
Max Smith
Loyd Gardner
Melvin Odell
Wallace Moreland
LAS ANIMAS
50
101



HIGHWAY AND TRANSPORTATION
MAP OF

BENT COUNTY
COLORADO

PREPARED BY THE
COLORADO STATE HIGHWAY DEPARTMENT
IN COOPERATION WITH THE
U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DATA OBTAINED FROM
STATE-WIDE HIGHWAY PLANNING SURVEY

SCALE OF MILES

1936

SPECIAL LEGEND
ROAD TYPE

NOTES

LOCATION AND NAMES OF OPERATORS ON FARMS WHO WERE CONTACTED IN PERSON FOR THE PREPARATION OF AN ECONOMIC SURVEY.

APPROXIMATE BOUNDARY OF IRRIGATED AREAS

KEY TO COUNTY SHEETS

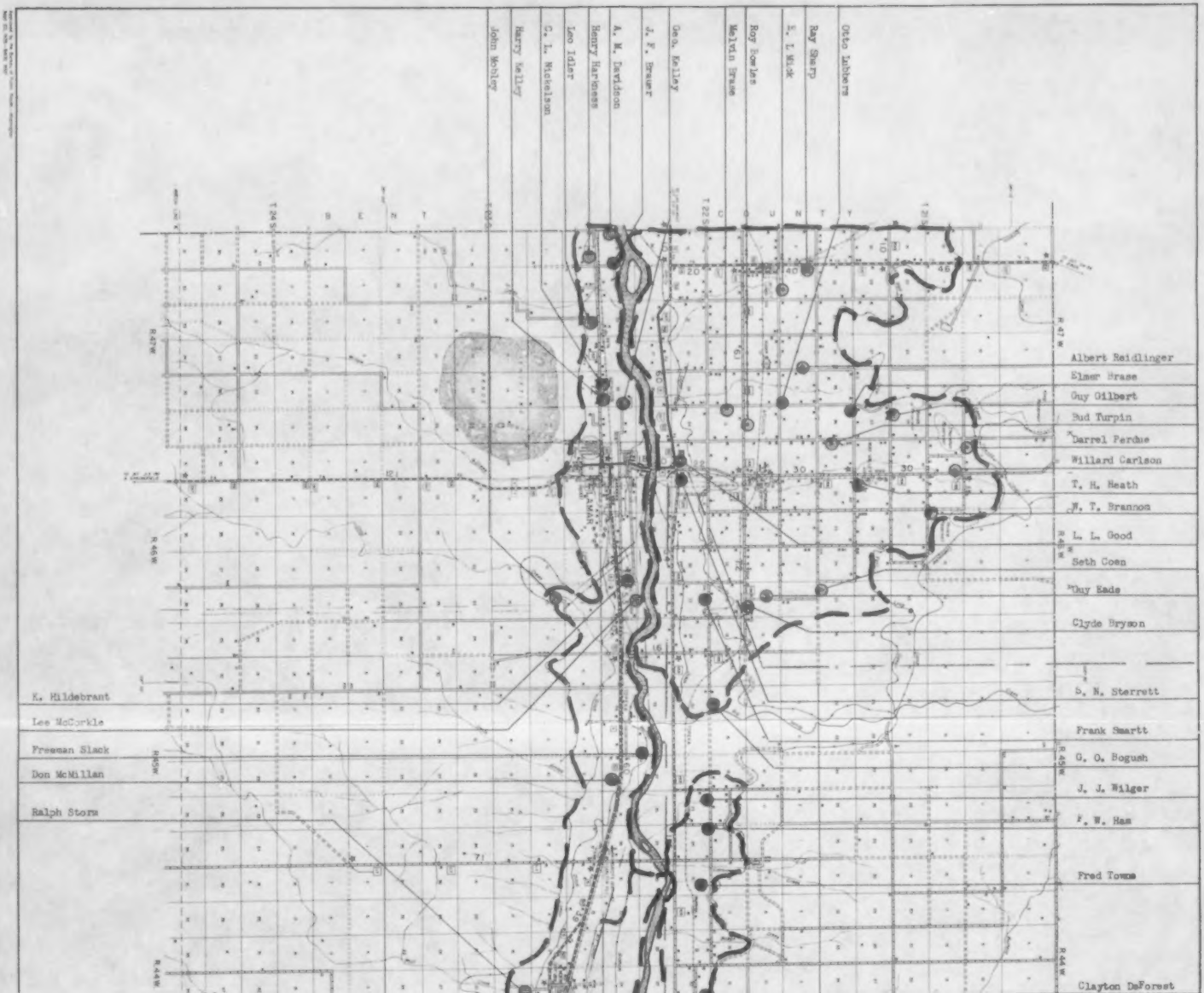
SHEET 1

SHEET 2

MODIFIED 1

SHEET 8 OF 9

35059 O - 53 (Face p. 266) No. 9


John Mobley
Harry Kelley
C. L. Nickelson
Leo Idler
Henry Harkness
A. M. Davidson
J. F. Brewer
Geo. Kelley
Melvin Brase
Roy Bowles
E. L. Mink
Ray Sharp
Otto Lubbers
Albert Reidlinger
Elmer Brase
Guy Gilbert
Bud Turpin
Darrel Perdue
Willard Carlson
T. H. Heath
W. T. Brannon
L. L. Good
Seth Coen
Guy Eads
Clyde Bryson
S. N. Sterrett
Frank Smartt
G. O. Bogush
J. J. Wilger
F. W. Ham
Fred Towne
Clayton DeForest
K. Hildebrant
Lee McCorkle
Freeman Slack
Don McMillan
Ralph Storm
R 47 W
R 46 W
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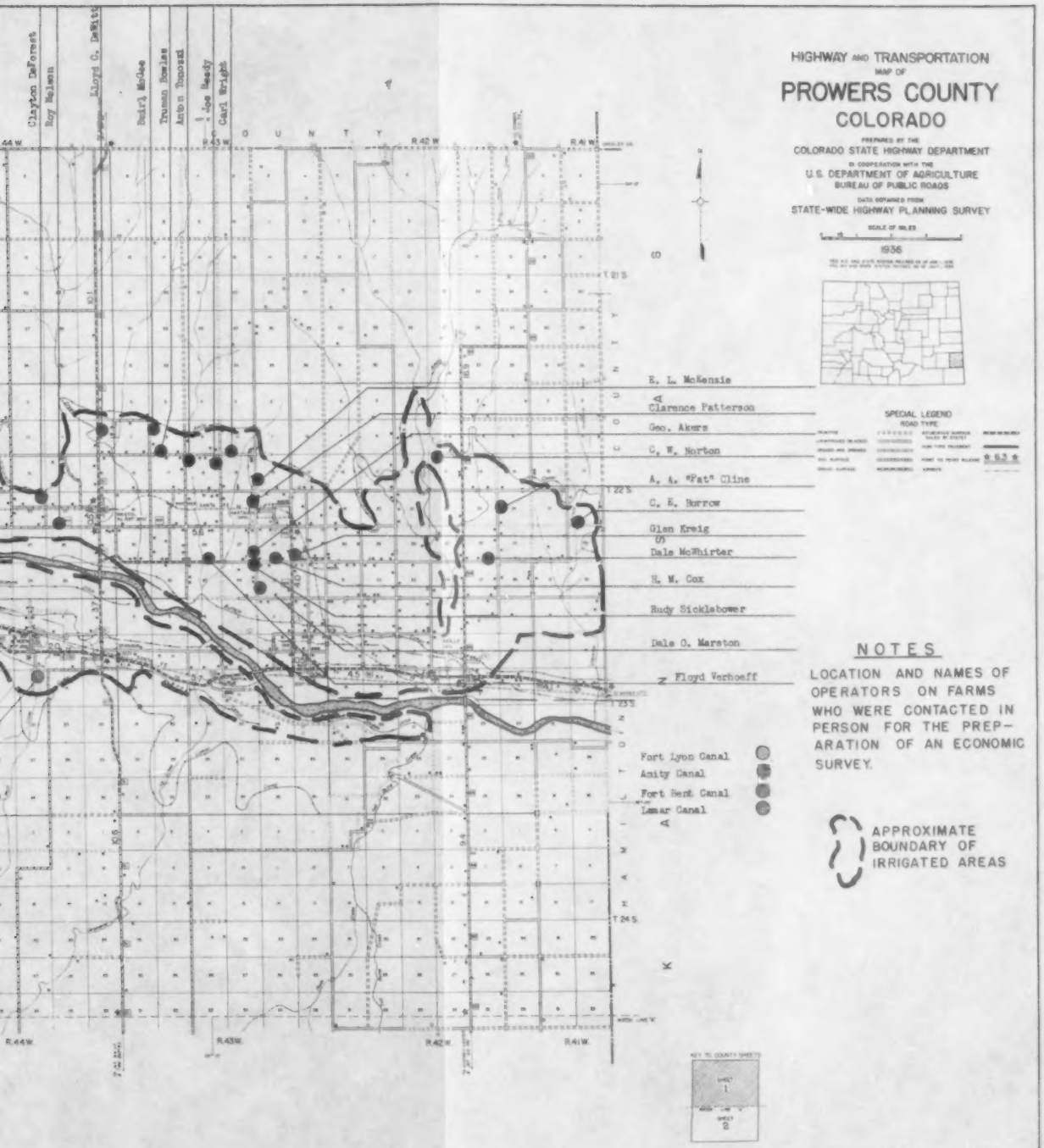
R 44 W



HIGHWAY AND TRANSPORTATION
MAP OF
PROWERS COUNTY
COLORADO

PREPARED BY THE
COLORADO STATE HIGHWAY DEPARTMENT
IN COOPERATION WITH THE
U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DATA OBTAINED FROM
STATE-WIDE HIGHWAY PLANNING SURVEY

SCALE OF MILES

1936

SPECIAL LEGEND
ROAD TYPE

NOTES

LOCATION AND NAMES OF OPERATORS ON FARMS WHO WERE CONTACTED IN PERSON FOR THE PREPARATION OF AN ECONOMIC SURVEY.

APPROXIMATE BOUNDARY OF IRRIGATED AREAS

KEY TO COUNTY SHEETS
SHEET 1
SHEET 2

SHEET 9 OF 9

35059 O - 53 (Face p. 286) No. 10

Before proceeding with him, I wonder if this map prepared by the Bureau might be printed in connection with the hearings. I do not know what the policy of the committee is. The Bureau has the plate, and there is no expense involved, so far as the plate is concerned.

Mr. D'EWART. We can put it in. I am not sure about the coloring. We can print the map. Possibly we can include the color. We will do that.

Mr. CHENOWETH. Thank you, Mr. Chairman.

(The map referred to is herewith inserted.)

Mr. CHENOWETH. Mr. Chairman, I talked to Mr. Harrison about the possibility of printing the charts and diagrams that Mr. Powell presented yesterday. He was not sure that this had been the policy of the committee. They were very interesting and I hope can be included.

Mr. D'EWART. We can print charts, if black and white, but have difficulty with colors.

Mr. CHENOWETH. If that would be acceptable to the committee, I think they would add a great deal to the hearing, and I now offer these charts to be printed as a part of the record.

Mr. D'EWART. Without objection, it is so ordered.

(The charts referred to are herewith inserted.)

Mr. CHENOWETH. Mr. Chairman, I want to present to the committee Mr. Charles Beise of Denver, one of our prominent water lawyers, who has been the attorney for the Water Development Association of southeastern Colorado since its organization, and has been very close to this project. I think he wants to answer some of the objections which have been raised to this project by the opposition and make a very brief statement to the committee. Mr. Beise.

STATEMENT OF CHARLES J. BEISE, ATTORNEY AT LAW, DENVER, COLO.

Mr. BEISE. My name is Charles J. Beise. I am an attorney with offices at 930 First National Bank Building in Denver, Colo.

For some 10 years before the war I was the attorney who formed the Pine River Irrigation District, which is the repayment entity of the Vallecito Reservoir in Pine River in southwestern Colorado.

I formed and was the attorney for the Mancos Conservancy District, which project also is in southwestern Colorado.

I formed the La Plata Water Conservancy District, which is a potential project in southwestern Colorado, and I subsequently participated in interstate litigation in the United States Supreme Court.

Since 1946 I have been attorney for the association which constitutes the proponents of this Fryingpan-Arkansas project.

I would like to refer very briefly to the testimony offered in opposition to the authorization of this project.

Mr. Fred Glidden, whom I admire greatly as a writer, has given us figures which would indicate that his organizaion, the Pitkin Water Protective Association, represents 200 out of a total population of 13,500 in the 3 counties, or roughly 1 out of every 67 persons, which, if so, would appear to be a very small membership in an organization of this type, where we are alleged to be taking the very lifeblood out of the community.

I think it pertinent that the committee's attention also be called to the fact that the telegram which Congressman Saylor read to two different witnesses, and the one which Congressman Aspinall has just read, was signed by a Mr. Smith, and I think the committee should know that this gentleman owns a farm and a beautiful home in the reservoir site of Aspen Reservoir, which of necessity would be taken if the project were authorized.

I believe Mr. Smith is an officer of the Pitkin County Water Protective Association.

Mr. ASPINALL. Mr. Beise, he is also a member of the Colorado River Conservancy District Board.

Mr. BEISE. That is correct. And I would like to speak of that in just a moment.

There is some confusion, I feel, on the part of the opponents, for Mr. Breitenstein testified that if the project were confined to the Fryingpan project Aspen would not oppose it. And on question this was corrected by Congressman Aspinall. But the fact remains that the opposition is to that very thing.

In other words, we are not talking about any Gunnison-Arkansas project. In fact, the comments of the State of Colorado on page 34 of Senate Document 106 specifically limits the approval of the Fryingpan project to an independent project, separate and apart from any Gunnison-Arkansas proposed diversion. The project must be appraised on its merits as a separate small project involving what has been said to be approximately 90,000 acre-feet of water by reason of the increased diversion to the Twin Lakes people and other factors.

I would like to say a few words concerning the testimony of my esteemed opponent, Mr. John Barnard.

I remember the fable of the child who gained fame and immortality by thrusting his thumb in a gopherhole in a dike and saving Holland from a disastrous flood. I will not pursue the allegory any further. But Mr. Barnard has brought up a number of points here which I think we must answer.

Firstly, he speaks on behalf of the Western Slope county commissioners' organization, consisting of 22 counties. I would like to call your attention to the fact that 14 of those counties are in the two water districts, both of whom adopted resolutions approving the Fryingpan-Arkansas diversion project.

Now, it is one thing to have official duties to comment on something, and it is something to volunteer an observation. I, as a citizen, might volunteer an opinion to the Committee on Interior and Insular Affairs as to whether Hawaii should be admitted to statehood, but that is a different matter from the committee's adopting a formal resolution on that specific subject. And that is the distinction which exists between a gratuity in the form of a resolution from the chamber of commerce on the one side or the other of the hill, or the county commissioners on one side or the other, and an organization charged with the official responsibility of commenting on and investigating, protecting water rights in proposed projects in the State.

Now, Congressman Aspinall has mentioned that Mr. Smith is also a director of the Colorado River District Board, and I think the record should show that on August 9, 1952, the Pitkin County Water Protective Association, Aspen, Colo., adopted a resolution at their annual

meeting, which was addressed to the Colorado River District Board, and the last pragraph thereof reads:

> We especially respectfully request the Colorado River Conservation District, a tax-supported organization of which Pitkin County is a member, to reexamine its past and present policy of approving diversions of our waters as the only course left and, instead, devote a portion of its attention and funds, along with other groups interested in blocking attempts to take our waters from western Colorado, before such plans get to the final staging for approval by the Colorado Water Conservation Board and the Congress of the United States.

In spite of that, the resolution of the Colorado River District Board, which was adopted prior thereto approving the Fryingpan project, has never been altered.

I understand further that Mr. Smith is apparently the Pitkin County director on that board, and that since his appointment he has requested repeal of that prior ratification, which, in turn, has again and for the additional time been denied.

The opposition expressed through Mr. Barnard can generally fall into two categories. I think misleading generalities——

Mr. HARRISON. May I interrupt for just one minute? I think we should have an understanding that, if we are going to throw this open to rebuttal all the way through, we are going to have to throw it open to surrebuttal, and we will never be through here. I would much prefer—I think the committee would—that you just do not try to go over all the testimony and pick flaws in it. You have to stand on the testimony you have given; and the opponents, the testimony they gave. We very seldom go into rebuttal before this committee; and our time is such that we cannot, as much as we would like to, give you time enough to go over all of the testimony of the different witnesses, because, if you do, we must extend the courtesy to the others.

I hope you will accept that in the spirit in which it is given, and without any personal criticism whatsoever.

Mr. BEISE. Thank you, Mr. Chairman.

I would like to comment on just 2 or 3 more points, if I may, out of the balance of the testimony.

There has been the implication that the Colorado Water Conservation Board and the other two official boards approved a project different in character than that which you are this day passing on. To this extent only is it true, and that is the Public Service Co. of Colorado and the Southern Colorado Power Co., since the time it was approved now offer to invest $6 million of their own money in building the necessary transmission lines. An authorization, unless revoked, certainly stands. And the fact that the cost goes up certainly is no more pertinent than if we had a recession and the costs go down. And if the cost today were $15 million less than when the projects were approved, I certainly do not assume that the proponents of the project would be critical thereof.

Mr. SAYLOR. I might call your attention to a little publication put out by this committee last year called Construction and Repayment on Federal Reclamation Projects, which shows that unfortunately, regardless of party or when the project was authorized, the Bureau of Reclamation never builds within their estimated costs. They do not even have one they can point to and say that is the exception.

Mr. BEISE. I do not challenge your statement, because I am certain I have not checked all of the projects of the Bureau of Reclamation that they ever have built.

Mr. SAYLOR. They are here available if you want them.

Mr. BEISE. I would be interested in your material, sir.

I would say, however, that Mr. Tipton has independently analyzed the unit cost, and states that this will be well within the estimate of the Bureau of Reclamation.

Finally, the matter of mineral values in western Colorado. The oil shale. I would simply like to point out that in the minutes of the Policy and Review Committee are summaries of the subcommittee, which is the engineering subcommittee of the State of Colorado, who made their own independent investigations as to the availability of water and potential uses.

There was allocated by this subcommittee and set aside for industrial uses, includlng oil shale, some 300,000 acre-feet per annum. That was assumed to be a demand on the river at Rifle and Cameo, allowing that amount for the pulp industry, the oil shale, and the cities necessary to man a million-barrel oil plant per day production.

This engineering subcommittee concluded that there was adequate water for the Fryingpan project, without jeopardizing the present or potential development of western Colorado.

Thank you very kindly.

Mr. D'EWART. I would like to read from "Western Colorado's Water Situation," page 9.

> Since the Smith report was compiled, water needs for a coal-to-oil synthetic fuels industry have been officially estimated at 1 million acre-feet, nearly 3 times the amount reserved in miscellaneous industrial needs in section 17 of the Smith report. Pell Ertel, professor and part-time employee of the Union Oil Co., stated in a speech at Denver last February that 1 million acre-feet would be required for oil shale development in western Colorado.

Would you like to comment on those statements?

Mr. BEISE. The figures that the Congressman has just adverted to are far in excess of any potential requirements of any degree of authenticity that I have ever heard before. This engineering subcommittee—and I an not an engineer, sir—analyzed the best possible available data and concluded that 300,000 acre-feet of water was ample for the full potential of oil shale development.

Any further questions?

Mr. HARRISON. Mr. Aspinall?

Mr. ASPINALL. No.

Mr. HARRISON. Mr. Saylor?

Mr. SAYLOR. No.

Mr. HARRISON. Mr. Rhodes?

Mr. RHODES. No.

Mr. HARRISON. Thank you very much.

Mr. WILL. Mr. Chairman, during the course of my statement yesterday I made no reference to two legal questions raised by Mr. Matthew. I had not anticipated, although I knew it was contained in the comments of the State of California, that the point of quality of water would be raised in connection with this comparatively small diversion.

And as to the comment of the Colorado River Board of California, I had not anticipated that it would be seriously pressed during the

course of these hearings. I did not wish to extend my statement beyond what I then deemed to be strictly necessary in order to save this committee's time.

However, in view of the fact that these points have been made, I wonder whether I may have from this committee the privilege of filing a statement in due course on the part of the Upper Colorado River Commission to which both of these points are extremely important, inasmuch as they involve the interests of Utah and New Mexico, particularly, in addition to Colorado?

Mr. HARRISON. Without objection, your request will be granted. It should be filed fairly soon.

Mr. WILL. It will be done promptly.

(The statement is as follows:)

SUPPLEMENTAL STATEMENT OF JOHN GEOFFREY WILL, SECRETARY AND GENERAL COUNSEL, UPPER COLORADO RIVER COMMISSION, RE H. R. 236, 83D CONGRESS, 1ST SESSION

I deeply appreciate the permission granted me on June 10, 1953, at the conclusion of the hearings being held by the Irrigation and Reclamation Subcommittee of the House Committee on Interior and Insular Affairs, in connection with the bill, H. R. 236, authorizing the Fryingpan-Arkansas project, Colorado, to file this supplemental statement.

The statement made by Mr. Raymond Matthew, chief engineer of the Colorado River Board of California, during the course of these hearings, makes two principal assertions with respect to which the committee is, in my judgment, entitled to fuller information.

The first of these assertions is that compliance with the Colorado River compact requires that the Fryingpan-Arkansas project should not be authorized if it appears that the diversion thereby proposed will adversely affect the quality of waters to which California has rights. The second assertion is that the Colorado River compact limits use of Colorado River water to the seven Colorado River Basin States and that, therefore, the Fryingpan-Arkansas project should not be authorized in the absence of assurance that return flows therefrom will not be allowed to escape into Kansas.

Both of the foregoing propositions are without foundation in law; and it is interesting to note that, except for a general reference to the Colorado River compact, Mr. Matthew's statement fails to refer to any authority sustaining his position. He could find no support for his position either in the Colorado River compact or elsewhere.

The fact of the matter is:

I. That the Colorado River compact specifically provides that the beneficial consumptive use thereby apportioned shall be available, at the sole discretion of each of the compacting parties, in the case of the upper basin States, to any part or parts thereof, whether within or without the drainage area of the Colorado River system, and, in the case of the lower basin States, to any part or parts thereof, whether within or without such drainage area; and

II. That the authority thus conferred by the compact upon each of the compacting States to make beneficial consumptive use of waters of the Colorado River system without its natural basin is unconditional.

That the compact specifically contemplates that the beneficial consumptive use thereby apportioned may be made as I have indicated is demonstrated from the provision of paragraphs (f) and (g), respectively, of article II thereof, which read as follows:

"(f) The term 'upper basin' means those parts of the States of Arizona, Colorado, New Mexico, Utah and Wyoming within and from which waters naturally drain into the Colorado River system above Lee Ferry, and also all parts of said States located without the drainage area of the Colorado River system which are now or shall hereafter be beneficially served by waters diverted from the system above Lee Ferry.

"(g) The term 'lower basin' means those parts of the States of Arizona, California, Nevada, New Mexico, and Utah within and from which waters naturally drain into the Colorado River system below Lee Ferry, and also all parts of said States located without the drainage area of the Colorado River system which

are now or shall hereafter be beneficially served by waters diverted from the system below Lee Ferry."

It is elementary that the parties to the Colorado River compact must be held to have contemplated the obvious physical consequences of providing specifically for use by the parties, at their sole discretion, of waters of the Colorado River system without its natural drainage area. Among these obvious consequences are: That return flows from such uses are lost to the basin and will find their way, depending upon the area in which the use is made, either, on the one hand, into the Pacific Ocean, or the Salton Sea, or Utah's closed basin, or Mexico; or, on the other hand, into Nebraska, or Kansas, or Texas; that these losses of return flow might have some effect on quality of waters remaining in the basin; and, that return flows from out-of-basin uses made by Colorado and New Mexico, finding their way, in accordance with gravity, into Nebraska, Kansas or Texas, might there be put to use. If, therefore, the parties had intended to obviate these latter consequences they would have so elaborated their agreement as to forbid or strictly limit out-of-basin uses by upper division States. This they did not do; and, it becomes clear then that, as a matter of law, they may not now be held to have intended, nor may their compact now be construed to prohibit or condition the doing of those things that are specifically and explicitly left to their discretion by the instrument itself. So, to construe the compact would amount, in effect, to writing a new contract for the parties. This the courts will not do.

The history of the compact negotiations, as found in the official records thereof, reflects the fullest understanding on the part of its negotiators and their complete acceptance of the physical consequences of providing for out-of-basin uses by the seven Colorado River Basin States of waters of the Colorado River system.

In the light of the foregoing, I have the honor of advising that the exportation of waters of the Colorado River system for use by the seven Colorado River Basin States, at their discretion, is specifically authorized by the Colorado River compact; that such authorization is unconditional; and that, therefore, it is not subject to the conditions suggested in Mr. Matthews' statement, or any others.

The failure of my statement to discuss other assertions made by Mr. Matthews is not to be construed as acquience therein.

Mr. HARRISON. I might say further, if there are any points that should be cleared up on either the proponents or the opponents' side, we will allow them to file any statement in rebuttal or surrebuttal providing they are not too lengthy. We would prefer not to go into outside matters. But we will give them that privilege if they feel that there is some point which has not been cleared up, which should be.

(Mr. Charles J. Beise, Water Development Association of Southeastern Colorado, subsequently submitted the following "Summary of Fryingpan-Arkansas project" and "Comments on the letter of June 8, 1953, addressed by the Bureau of the Budget to the Secretary of the Interior.")

SUMMARY OF FRYINGPAN-ARKANSAS PROJECT

The sponsors of the Fryingpan-Arkansas project are united in a nonprofit corporation known as Water Development Association of Southeastern Colorado, which represents all water users in the Arkansas Valley from the town of Leadville, Colo., to the Kansas State line, a distance of approximately 360 miles.

WHAT PROJECT DOES

This project is a proposed multiple purpose reclamation project designed to provide irrigation and domestic water, electric power and flood control for that portion of the Arkansas Valley in the State of Colorado. The flow of the Arkansas River at Pueblo has an annual variation from approximately 200,000 acre-feet minimum to a flow in excess of 1 million acre-feet. This extreme variation results in a desperate need for supplemental irrigation water, reregulation, as well as flood control.

DIVERSION AND REREGULATION

The project proposes to capture and divert approximately 70,000 acre-feet of water annually from the western slope of Colorado by means of ditches and to transport the same by tunnel to eastern Colorado, where this water will be stored in reservoirs and subsequently released to provide irrigation and domestic water and for the generation of electric energy. The same reservoirs will capture intermittent flood flows of the Arkansas River and will make possible the reregulation of such Arkansas River waters.

Reregulation will consist of ceasing the present practice of using water during the winter months and in lieu thereof the same will be stored in reservoirs for release during the growing seasons. Likewise, shallow plains reservoirs having extremely high evaporation losses will be used to a lesser extent and in lieu thereof waters previously stored therein will be stored in project reservoirs with lower evaporation losses.

The project will, in effect, make available for beneficial use in the Arkansas watershed a total of approximately 183,000 acre-feet of new water per annum of which approximately 70,000 acre-feet of water originates in western Colorado.

PHYSICAL WORKS AND COSTS

Physically, the project consists of ditches, tunnels, canals, dams, power plants and domestic water pipeline and treatment plant. The project's cost under today's prices is approximately $175 million, which will be charged to the following facilities:

$75,000,000 to irrigation, $42,000,000 to power facilities, $32,000,000 to municipal water facilities, $20,000,000 to flood control, and less than $3,000,000 to fish and wildlife.

NO NEW LAND

No new land will be irrigated by the project. The entire project water production will be consumed as a supplemental supply for the irrigation of approximately 320,000 acres of presently irrigated lands, which purpose will require approximately 168,000 acre-feet. Municipal water supplies for valley towns will require the remaining 15,000 acre-feet, which is 8 percent of the total.

IRRIGATION REPAYMENT

The charges for irrigation water will average $5.40 per acre-foot and the project will make available approximately one-half acre-foot of water to each acre of presently irrigated land.

Two dirt farmer witnesses will testify that the proposed charge for irrigation water is well within the ability of the users to repay.

MUNICIPAL REPAYMENT

The charge for municipal waters will average between $20 and $40 per acre-foot, varying in proportion to the cost of project facilities required to serve the various municipalities.

OTHER REVENUE

Additional project revenue will be derived from a 1-mill tax on assessed valuation of all property within the district boundaries imposed by the repayment entity which will contract for the repayment of project costs. In addition, owners of present water rights will be charged $3 per acre-foot per annum for storage of their water in project reservoirs. Lastly, substantial revenues will be derived from the sale of electric energy.

MODIFIED COLLBRAN FORMULA

The revised repayment program contemplates a modified Collbran repayment plan. Costs allocated to power and municipal facilities will be charged 2½ percent interest and the principal and interest charges amortized in a 50-year period. Thereafter, the entire net revenues from power and municipal facilities will be credited to repayment of the irrigation features, which when combined with irrigation revenues will result in the repayment of all costs assessed to irrigation in 96 years.

35059—53——19

1944 FLOOD CONTROL ACT APPROVAL

The Fryingpan project has been approved by the official State agency of Colorado charged with the duty of commenting thereon by the 1944 Federal Flood Control Act. The project report has been released to all affected States and Federal agencies. All States admit that the waters proposed to be utilized by the project are well within the States' share of waters in the Colorado River. The project is not opposed by any State or agency, although some offer minor suggestions in connection therewith.

INTRASTATE POLICY

All matters involved in intrastate policies of Colorado have received most careful attention. The Colorado Water Conservation Board appointed a Policy and Review Committee to review the project plans and to report back to the board. This committee had its own engineers develop the necessary data to determine the feasibility of the project. A special engineering subcommittee was appointed to make an independent analysis of the present and future Western Slope water requirements of excess waters in Colorado available for diversions and of the size of replacement reservoirs required by the State law.

In addition, this committee checked all figures made available by the Bureau of Reclamation and made modifications therein and concluded that there was ample water for the Fryingpan project which could be diverted to eastern Colorado without detriment to Western Slope present and potential users and fixed the capacity of the Aspen Reservoir at 28,000 acre-feet.

The Federal Fish and Wildlife Service, the Colorado State Fish and Game Department, the Izaak Walton League assisted in appraisement of recreational values involved and designated the required streamflows for preservation of fishing. Attorneys and water users cooperated in specifying conditions of project operation.

All of these recommendations were codified in a plan of operation contained in Senate Document 106 of the 82d Congress, pages 20–23.

WESTERN SLOPE APPROVAL

This plan of project operation, which was approved by the policy and review committee, was submitted to the Colorado River Conservation District Board and the Southwestern Colorado Conservation District Board, being the only two statutory western Colorado board officially charged with the duty of protecting their respective areas on proposed water diversions. Each of these districts endorsed the operating principles and the project unanimously and, in spite of two official requests subsequently addressed to the Colorado River Conservation District Board by residents of Aspen, that board refused to change its endorsement.

Finally, the Fryingpan project was officially approved in August 1951 by the Colorado Water Conservation Board and the Governor of the State of Colorado, who on June 12, 1953, telegraphed this committee reaffirming the approval by Colorado of the Fryingpan project. The project proponents do not believe that the increase in project costs necessitate resubmission of the project report.

TODAY'S COST

Three years have elapsed since the project report was written. The project report is based on 1949 prices, and in this interim the identical project works have increased in cost from $147 million to $173 million, or a net increase of approximately $25 million. This increase has been allocated in the following amounts to the following facilities.

Flood control	$3, 000, 000
Irrigation	18, 000, 000
Municipal	3, 000, 000
Fish and wildlife	1, 000, 000

The irrigation increase has required an increase in charges for supplying irrigation water from $3.60 per acre-foot to $5.40 per acre-foot, and for storage of independent waters from $2 to $5 per acre-foot.

CHANGE OF NAME

The green-covered project report No. 7–8a. 49–1 is labeled "Gunnison-Arkansas Project, Roaring Fork Diversion." This name is a misnomer and results from its official use by the Bureau of Reclamation in investigating a comprehensive water-

diversion plan from the Gunnison, as well as the Roaring Fork and Fryingpan Rivers to the Arkansas River. This plan was much greater in scope and is not the plan before the committee. The Fryingpan-Arkansas project is an independent unit which could be assimilated in the larger Gunnison-Arkansas project if the latter is ever investigated and authorized. At the request of the State of Colorado, the name of this project was changed to the Fryingpan-Arkansas project. This same misnomer is applicable to the map in the flysheet of Senate Document 106. All project features indicated thereon in western Colorado, except the Aspen Reservoir and the collection system on the Fryingpan River, should be ignored. In lieu of this map, please direct your attention to the map prepared by the Bureau of Reclamation bearing the designation "Fryingpan-Arkansas Project," dated April 1953.

PROJECT OPPOSITION IN COLORADO

It is practically impossible to obtain the endorsement of all persons on any project. Two men whose ranches and homes will be taken for the Aspen Reservoir head the opposition centering at Aspen, Colo. Fundamentally this opposition is based on personal interests. Every objection that may be voiced has been previously considered in detail by the official boards of Colorado charged with the responsibility for approving or rejecting projects of this type.

$100,000 SURVEY

The 1953 Colorado Legislature appropriated $100,000 for a survey of western Colorado waters, other than those affected by the Fryingpan-Arkansas project. This appropriation was the result of the request of the city of Denver for State approval of a potential project designed to divert water from a tributary of the Colorado River known as the Blue River, to the city of Denver. The appropriation was a necessary result of the resolution of the Colorado Water Conservation Board adopted at the time the Fryingpan-Arkansas project was approved, which resolution, after approving the project, stated that no further federally financed water-diversion projects from the Colorado River to the eastern slope of Colorado would be approved until complete surveys of western slope needs and waters become available. The proposed Denver project is a federally financed project, and hence the provisions of the resolution came into play. As a result of this legislation and appropriation, the water-conservation board created a conference committee to accelerate the appraisal and evaluation of these potentials which had been under study by Colorado and the Bureau of Reclamation for more than 20 years. The Fryingpan-Arkansas project is not to be reconsidered by that committee, nor will its prior approval in anywise be affected by the work thereof.

COMMENTS BY MR. BEISE ON THE LETTER OF JUNE 8, 1953, ADDRESSED BY THE BUREAU OF THE BUDGET TO THE SECRETARY OF THE INTERIOR

Referring to the comment of the Bureau of the Budget that the repayment of the irrigation facilities should be restricted to a period of 50 years, being the first sentence in the fourth paragraph on the first page of their letter.

There is no reason why the repayment obligation should be restricted to a 50-year interval when the life of the facilities constructed exceed many, many times that arbitrary period.

Historically, the Bureau of Reclamation was authorized to construct projects having a 10-year-repayment period. Over the past 50 years that has gradually been extended. The reason is obvious. The simplest projects were first constructed. More complex projects remaining cost more. By the same token, the type of construction involved is of such a character that its duration and life are longer.

The Government has triple security for its obligation after the initial 50-year period, for it then has the net revenues from power and municipal water as well as direct revenue from irrigation, whereas during the first 50-year period its security, so far as irrigation is concerned, is direct payment by irrigation.

There is every reason for extending the repayment period to the 69 years for irrigation facilities, which was the requested basis of this project because the life of the project is estimated to be considerably beyond 69 years. In any kind of financing plan, you want to get your money back as reasonably soon as possible. It probably would be unfeasible to extend it clear out over the estimated life of the usefulness of the project, but a 69-year period would certainly discount adequately the estimated useful life of the project.

There is no reason to assume that the operation and maintenance costs would in any wise even remotely imperil the security of the Government on the repayment obligation if confined to the 60-year period.

We have had experience as to the life of projects of this kind. The Wilson Dam on the Tennessee River, and the Hoover Dam, are all now 20 to 30 years old. Those great installations have hardly reached the beginning of their useful life. It would have been very foolish on the face of it to have designed those installations on a 50-year life. Had they been designed that way, we would come up against the problem of enlarging them and rehabilitating them with all the terrible costs and expenses that would be involved.

Referring to the statement of the Bureau of the Budget in the second paragraph on page 2, first sentence, reading:

"Federal and State agencies, in commenting on the original project, report, questioned (1) the high cost of a limited supply of supplemental irrigation water, (2) the ability of the water users to repay annually as much of the irrigation costs as proposed * * *."

The answer to that observation is that any water which was in anywise adequate to begin to relieve the dire need of the Arkansas Valley must be imported from the Colorado River, and as a consequence and of necessity the costs in connection therewith are high. We have no choice. Mother nature made that barrier to start with.

An average charge of $5.40 per acre-foot for supplemental water is cheap crop insurance, and the farmers of the area are anxious, willing, eager, and most able to pay for and purchase that quantity of supplemental water which they so sorely need.

The maturity of a crop with that last water that will be brought by this project is the value of the whole crop. By the time the last irrigation is needed, the farmer may well have several hundred dollars invested in each crop acre. If he fails to produce a crop and $5.40 an acre-foot of water would have saved it, it is ridiculous to say that the economy of that farmer will not support that charge.

Next, the third point in that same sentence of that same paragraph:

"* * * (3) the ultimate amount of transmountain diversion and its effect on the quality and use of Colorado River water available to the lower basin."

This observation is academic in character. The Fryingpan project diverts 70,000 acre-feet of water on an average. Just assuming an average annual Colorado River flow of 15 million acre-feet, the project uses one one hundredth twenty-fourth, or less than one-half of 1 percent of the flow of the Colorado River.

So quantitatively, it is almost microscopic.

There is nothing in the Colorado River compact concerning the quality of water.

Concerning the benefit-cost ratio, direct and indirect benefit: This is a development of recent years and was originally applied to flood control projects by the Army engineers.

It might possibly be applicable to flood-control benefits on this project, which are approximately 12 percent of the total costs.

Flood control projects go much further with indirect benefits than do reclamation projects.

Reclamation has always been based on the premise that, except for such floods control benefits which might incidentally be involved, the Government recoup its investment in the project, and the indirect benefits are the benefits that have poured taxes into the Federal Treasury that go far beyond the cost of the project. The expansion of the economy of the Arkansas Valley resulting from this project will far exceed any computations the Bureau of Reclamation might have put in here on indirect costs.

Take out the irrigated acreage of the Arkansas Valley, and we would be back on a grazing basis.

The State of Colorado answered this question by taxing all property within the boundaries of a conservance district, whether or not it receives any water. The merchant in the town must pay a levy of not more than 1½ mills per annum.

There will be a levy of that kind in connection with this project.

Since it applies in Colorado, indirect benefits should be recognized by the Federal Government in evaluating a project of this character. The budget formula ignores one of the basic truths of western economy.

If the costs of multiple-purpose operations were confined strictly to direct costs, it would probably stop the development of the reclamation side of all multiple-purpose projects in the future.

Unless we are willing to abandon our reclamation policies in this country as they have been, unless we are willing to stop all Government assistance in the financing of reclamation projects, we cannot accept the principle that we must confine these cost allocations to direct costs.

The fifth point is contained in the fifth paragraph on the second page of the Bureau of the Budget report, and that is:

"* * * a separate evaluation should be made of the feasibility of importing water from the Colorado River Basin, considered as an incremental addition rather than an integral part of the project."

The original investigation of this project was a large project far vaster in scope, calling for diversions from the Gunnison River. It involved such a terrific sum of money that the next logical step at the request of the water users was taken, and that is that the Bureau of Reclamation then investigated the smallest possible feasible project.

The result of that is the Fryingpan project, which is submitted to this committee this day. Any single-purpose project is so expensive or so limited in scope that it fails even remotely to approach the problems present in the Arkansas Valley.

Concerning the last sentence of that same paragraph, on page 2 of the Bureau of the Budget report:

"* * * there is no evidence in the report indicating a willingness by the irrigators to repay the proposed charges for an average annual supplemental water supply of about one-half acre-foot per acre."

If the author means the $5.40, he is correct, because that charge evolved after Senate Document 106 was printed. However, the irrigators Mr. Ryan and Mr. Cooper testified that they are not only willing, they are anxious and eager, to repay the average charges for this one-half acre-foot per acre of supplemental water which, in their opinion, as a farmer might say, is cheap crop insurance.

The next paragraph, being the last paragraph at the bottom of page 2, contains a statement in the first sentence reading:

"Plans for municipal water supplies appear doubtful because of the high water rates, optimistic estimates of average water deliveries, and uncertainty of including all proposed facilities and functions in the ultimate plans."

Senate Document 106 shows that the average acre-foot charge varies from approximately $20 to $40 per acre-foot per annum for municipal water. That cost varies as the cost of facilities required to serve the particular municipality. In other words, we do not have a postage-stamp rate of delivery of municipal water. If the town of Eads, which it does, now exists by paying $5 per tankload of water, I say that an acre-foot of water now costs the city of Eads over $1,600 per acre-foot. How can it then be said that they cannot afford to pay for municipal water these average rates which are proposed in this project?

The fact is that, where your life depends on municipal water, you can afford to pay just what that water costs, or the town must perish.

The project plan does not call for the construction of any facility not previously constructed on Federal reclamation projects. The second barrel of the San Diego aqueduct, the Salt Lake aqueduct of the Provo River project in Senator Watkins' district, and possibly the Canadian River project in Texas, and others, have all involved similar municipal facilities.

It is difficult for municipalities reaching from Colorado Springs for several hundred miles, you might say, at least 150 miles down the river, to unify their requirements without some major entity to deal with, and that is where this proposed district would come into play, and only after firm contracts are signed, sealed, and delivered.

Concerning the statement of the Bureau of the Budget:

"We also believe that costs of correcting damages to fish and wildlife resources caused by the building of the project should be treated as part of the construction costs and allocated to the various purposes in the same manner as other damages, including relocations."

That statement is erroneous, and whoever prepared it did not comprehend the project report. The Fryingpan project does not cause any damage to fish and wildlife. To the contrary, the project proposes to better the existing conditions by improving the flow of the Roaring Fork River.

To illustrate the point, if you would envision the capital letter Y with the Twin Lakes Canal & Reservoir Co. diverting from one fork of the Y, the Fryingpan project diverting from the other fork, and the main stem of the Y being the Roaring Fork River above Aspen, you have then this situation: The Twin Lakes Reservoir & Canal Co. has agreed to forego asserting their legal vested right to divert waters from one fork of this Y if in turn the project will make available to

them, without cost, the same amount of water that they could have captured had they asserted their rights.

Accordingly, as a result of numerous meetings with most competent fish and wildlife men, both Federal and State, and the Izaak Walton men themselves—Mr. Penfold—the very flows which they recommended have been specifically and categorically designated and inserted in the operating principles contained in Senate Document 106.

By reason of the provisions of this project, we propose to better by means of a legal exchange, as we term it, in Colorado, the fishflows on the Roaring Fork above the mouth of Hunter Creek.

At the moment, at Turquoise or Sugar Loaf Reservoir, the public uses it by sufferance. That reservoir would be substantially enlarged. It is a holdover reservoir, as I use that term advisedly, to firm power. As a consequence, the water levels will fluctuate far less than Pueblo Reservoir. It would be very much enlarged, and the public would have the right to use it. The man-hours of recreation use of that enlarged reservoir will far more than compensate for any lessening in possibly some small tributary that might otherwise be adversely affected on the Eastern Slope.

The fish and game associations on the Eastern Slope at Pueblo have unqualifiedly endorsed the Fryingpan project.

Concerning the first sentence of the last paragraph on page 3 reading:

"Our review indicates that further study of various aspects of the project might be warranted."

That is carrying coals to Newcastle. The project has been investigated by the Bureau of Reclamation itself for more than 10 years. The State of Colorado made an independent engineering survey of nearly 3 years. The East Slope and West Slope negotiated for over 2 years.

Investigations have reached the point of diminishing returns.

Mr. HARRISON. If there are no further witness——

Mr. CHENOWETH. I would like to say this word before you close this hearing, Mr. Chairman.

I am sure everyone here from Colorado, including the witnesses who have appeared, want to express their appreciation to you for the courtesies you have extended and the consideration you have given this project. We know how busy you are. We appreciate the time you have taken to attend these hearings and what I say applies to the other members of the committee here this afternoon who have sat through these hearings. We appreciate your consideration, and we know you have taken time out of a very busy life and neglected your own office affairs to be here.

We want you to know we are grateful to you for giving us this time.

I am sure the fact this large group of witnesses from Colorado is here indicates to you the interest which exists in Colorado in this project, and I know that each of them would want me to express his personal appreciation to you, Mr. Chairman, and each member of the committee for the attention you have given us.

Mr. HARRISON. Thank you, Mr. Chenoweth. May I say it has been a pleasure to have the Colorado folks here on this particular question, and I hope that everybody has had sufficient time. I do appreciate the willingness of the members of this committee to come out and attend the meetings and help ask the questions.

At this point, without objection, there will be placed in the record a telegram to Chairman Miller from Governor Thornton of Colorado requesting favorable action on the project.

(The telegram is as follows:)

[Western Union]

DENVER, COLO., *June 12, 1953.*

Hon. A. L. MILLER,
Chairman, House Committee on Interior and Insular Affairs
New House Office Building, Washington, D. C.

Re S. 964 to authorize Fryingpan-Arkansas project. The Colorado Water Conservation Board and I, as Governor, have approved and still approve this project and urge its early authorization. The increase in construction costs since the formal Colorado comments were submitted in 1951 does not in my opinion materially affect the economic feasibility of the project. The action of the Colorado General Assembly appropriating funds for a study of the western slope water situation does not directly or indirectly affect or modify the official State action, approving this project. Favorable action by your committee is respectfully requested.

DAN THORNTON, *Governor of Colorado.*

The meeting will stand adjourned.

(Whereupon, at 4:35 p. m., the committee recessed, to reconvene subject to the call of the Chair.)

COMMITTEE NOTE.—Mr. Harrison subsequently presented for the record a letter from George F. Jackson, president of the Colorado division, Izaak Walton League of America, Inc.)

IZAAK WALTON LEAGUE OF AMERICA, INC.,
Littleton, Colo., June 29, 1953.

Hon. WILLIAM HENRY HARRISON,
Chairman, Subcommittee on Irrigation and Reclamation,
House of Representatives, Washington, D. C.

DEAR MR. HARRISON: The Colorado division of the Izaak Walton League of America unfortunately was unable to be represented at the recent hearings held by your subcommittee relative to the proposed Frying Pan-Arkansas diversion project. In the past few days, however, we have had opportunity to study a transcript of the hearing prepared by the Veley Reporting Co. In it mention is made of the Izaak Walton League a time or two giving an erroneous impression of our attitude toward this project. This should be corrected.

In the testimony presented by Jean S. Breitenstein, attorney for the Colorado Water Conservation Board, page 104 of the transcript, he states, "* * * and the whole procedure had the blessing of the Izaak Walton League." Again, on pages 79 and 80, he quotes from a statement made in January 1950, before the policy and review committee for the Gunnison-Arkansas project by J. W. Penfold, western representative of the league. The quotation is correctly given, but taken out of context, as it was, it gives the impression that Mr. Penfold and the league endorse the Frying Pan-Arkansas project. The Izaak Walton League has at no time endorsed the project, nor did Mr. Penfold endorse it in his statement.

For your information I am attaching a copy of the complete statement. I would like to make a few additional comments. There are two distinct parts to this project as it relates to fish, wildlife, and recreation values; effects on values on the western slope (in the Frying Pan and Roaring Fork drainages), and effects on values on the eastern slope (the Arkansas drainage).

The United States Fish and Wildlife Service and the Colorado Game and Fish Department spent a lot of time in the Roaring Fork and Frying Pan drainages, studying water-flow records, fisheries requirements, etc. On the basis of these studies recommendations were made to the Bureau of Reclamation as to minimum streamflows necessary to maintain a fishery value. These were accepted substantially by the Bureau, the policy and review committee, and the Colorado Water Conservation Board. It was then proposed that collection systems in the Hunter Creek area be extended so as to divert additional water to the eastern slope to replace water for which the Twin Lakes Co. has decrees in the Roaring Fork, but which to date it has been unable to divert because of lack of storage facilities on the eastern slope. As we understand it, the company can legally divert 53,000 acre-feet, but regularly diverts only 38,000 acre-feet.

Full diversion of the 53,000 acre-feet would indeed drastically damage the fishery values in the Roaring Fork. It seemed to us that the scheme proposed for mitigating this damage was about as much as could be expected, if the Frying

Pan diversion must be made. The fishery values in the Frying Pan, Roaring Fork, and Hunter Creek, however, will suffer decrease, if the project is built, even giving full value to the water-swapping scheme with the Twin Lakes Co.

The action taken by the policy and review committee relative to this phase of the project on the western slope, as far as we can determine was the first time the Colorado Water Conservation Board or any of its committees had given substantial consideration to fish, wildlife, and recreation values in connection with irrigation, municipal water, or hydroelectrical projects. They deserved commendation; Mr. Fenfold gave credit where credit was due.

But the damage to fish, wildlife, and recreation values in the Arkansas drainage which this project would commit, are greater than would occur on the western slope in actuality. At the time of Penfold's statement, no ways or means had been proposed whereby these damages might be reduced or mitigated. Penfold pointed out that the Arkansas is of great value to the State of Colorado now, and is destined to be of far greater value in the future for recreation and fishing. He predicted that it would some day be one of the most valuable streams in the whole State, because of its location with respect to population centers, accessibility from major highways, its size, length, scenic values, adjacent facilities for serving fishermen and vacationist needs, and so forth.

It was our hope that the policy and review committee and Water Conservation Board would see fit to consider those values on the eastern slope at least to the extent they had on the western slope, and recommend accordingly. This they have not yet done.

As the project stands now, authorization is being asked with absolutely nothing having been included or proposed to mitigate loss of fishery and recreation values in the Arkansas drainage. We can anticipate drastic loss in the Arkansas River from the Snowden diversion point to Salida by dewatering, resultant temperature increase, growth of undesirable aquatic vegetation due to low flows and increased temperatures, increased ratio of pollutants to clear water, great reduction of surface area and entire change in the river's character. Substantial loss of values in Sugar Loaf (Turquoise), Clear Creek, and Twin Lakes reservoirs due to greatly increased fluctuations of water levels. Tributary streams coming in from the west between Turquoise and Salida will be tapped and diverted into the power canals and so additional miles of tributary streams lost. From Salida downstream an excess of water year round will largely eliminate the fishery value which is now considerable.

We were hopeful that this project might be planned so as to minimize losses on the eastern slope. The attitude among official circles at present seems to be, "Let's not talk about those things now. Let's get the project authorized. After it's authorized then we can go into such matters and see what can be done."

As a matter of principle, we believe the public, which is being called upon to finance this project, should have a full understanding of just what is involved. Not only the financial cost, and the claimed benefits, but the damages to and loss of other important resources. If there must be a choice, and valuable resources sacrificed, all right. But let's not have it a blind choice.

With these things in mind, among others which we hope we'll have a chance to discuss with your committee before final action is taken on this project, the Colorado division at its 28th annual convention June 21, 1953, adopted a resolution opposing authorization of the Frying Pan-Arkansas project at this time. A copy of this resolution is attached.

Sincerely,

GEORGE F. JACKSON, *President.*

STATEMENT TO THE POLICY AND REVIEW COMMITTEE FOR THE GUNNISON-ARKANSAS PROJECT BY J. W. PENFOLD, WESTERN REPRESENTATIVE, IZAAK WALTON LEAGUE OF AMERICA

The Izaak Walton League of America is a national, broad-gage conservation organization dedicated to the fostering of wise management and use of renewable natural resources—our soils, forests, waters, and wildlife—for long-range benefit to all the Nation. The league is supported by tens of thousands of members in hundreds of local chapters all over the country. The league is interested and concerned in the Gunnison-Arkansas project because of its importance to Colorado and to the Nation as a whole.

It should be made very clear at the outset that the league is not opposed to river basin development. To the contrary, the league, which is made up of a very representative cross section of the American people, fully recognizes the need

and the desirability of making maximum use of natural resources consistent with their preservation for permanent value. This western country depends on water—without it our great agricultural potentials are valueless—without it indsutrial expansion is impossible—without it, and in large, clean, unpolluted quantities, our population cannot increase in normal, healthy fashion.

However, the league cannot take the position that the best interests of our economic and social system necessarily and automatically will be served merely by placing structures in our river basins which divert, impound, and channel water to penstock and headgate. The interrelation of natural resources and the uses to which man puts them is too complex. There is much more to know about these relationships than our greatest scientific minds can now tell us—there is much we can learn only through trial and error. In this western country we have had a century of water development and reclamation—we should have learned some lessons. We know that about one-third of all acreage irrigated in the past is no longer productive cropland. We know that reservoirs silt up and lose valuable capacity. We know that, unlike our forefathers, we can no longer move on to new lands—we have to make the best and the most of what remains. We know we cannot dry up a stream and still support fish and aquatic life. We know we cannot endlessly disturb the habitat of wildlife and expect to maintain an optimum wildlife population. We know we cannot remove the ground cover from our watersheds without disastrous results. We cannot, in short, exploit our resources for some particular purpose and expect to escape all the consequences.

It should be said right here that this committee, which is unique in reclamation history, and the consideration being given by it to the related values of the Gunnison-Arkansas project constitutes a long step in the right direction, of which Colorado can well be proud.

This initial phase of the Gunnison-Arkansas project is a case in point, illustrative of the billions of dollars worth of river basin projects planned and illustrative of the opportunities we have, if only our planners and the public generally are sufficiently long-headed to see them and grasp them firmly.

Without disputing the prime values which this project promises, without mention of the soil conserving, watershed protection programs which should be part and parcel of such projects, if not essential preliminaries. I should like to focus my remarks on another value—the great, colorful Colorado recreation industry. An industry which has grown by leaps and bounds in recent years, which we can anticipate will continue to grow in accelerated fashion.

Recently hardheaded businessmen of Denver gave tangible evidence of their faith in this aspect of Colorado's future by subscribing a fund of $150,000 to be expended during 1950 to publicize Colorado's incomparable recreation environment. They don't spend that kind of money out of sentiment—they figure it a sound investment, sound business. They recognize the importance of the 2,600,000 recreation-minded visitors who came to Colorado this year, the importance of the $216 million they spent in Colorado for food, cabins, lodging, fishing tackle, guns and ammunition, gasoline, tires, horses, beer, souvenirs, and so on down the long list of goods and services produced in Colorado.

It is not necessary to indicate the trends, to reiterate the figures which demonstrate the increasing movement of peoples into Colorado for recreation purposes. We are all familiar with them. We know Colorado is destined to play an ever-increasing part in the Nation's recreation picture. We are all familiar with the Brookings Institution estimates that in the next century the Nation's recreational requirements will have increased thirtyfold. The Nation will require 30 times more recreational opportunities than we are now utilizing. Normal increase in population, shortening of work hours as technological advances are made, higher wages, paid vacations, earlier age of retirement, spreading the base, so a larger and larger portion of the population has the time and the money, as well as the desire. Whether we care to agree with the specific figure cited is perhaps unimportant, as I believe we can all agree with the trend it illustrates and the operating principle it suggests—no, the principle it demands. We must recognize recreation as a vital aspect of our economic life, and take it fully into account in all resource development plans. Or we are sadly derelict in our duties, to ourselves, our children, their children, and uncounted generations in the future.

I am reminded that reclamation law makes no adequate provision for recreational values, that Colorado law does not recognize recreation as a beneficial use of water. So here, as in other river-basin developments, we find ourselves anchored to the concept that we may strive to prevent avoidable damage to existing recreation values—but farther than that we may not go. Presidential vetoes of the Vermejo project and the Colorado-Big Thompson recreation bill would appear

to illustrate that as fact. Both would have provided funds for recreational development on reclamation-project areas. Both were vetoed because basic policy has never been established under law.

Are we not shortsighted to neglect long-range values in recreation? After all, justifications for these projects, determinations as to their economic feasability, are based on values which will accrue in the future from lands to be irrigated, from power to be generated, from industrial and domestic water use 10, 20, and 50 years from now. We do not expect those users to pay out their shares of the cost for 60 years. There will be few of us present to witness the final payments. We are talking about the future, planning for the future, determining values for which our descendants will thank us, we hope. And that is how it should be. Let us not, at the same time, sell them short on other values.

It is not enough that the biologists evaluate our streams as of today. It is not enough that the park and recreation technicians evaluate present use of recreational opportunities. We must think and plan in terms of what the fisheries of the Arkansas River will be worth to us when the pressures on Colorado streams are tremendously greater than they are today, when the pressure on the Leadville-Salida stretch, for example, grows even to what the Poudre or the Big Thompson supported this past season.

Rocky Mountain National Park, with well over a million visitors this year, has about reached its saturation point. The area close to population centers east of the front range are reaching their saturation point. Visitors to Colorado and Coloradans alike are spreading out westward for their recreation. The high country of the Frying Pan and Roaring Fork drainages, as well as those incomparable streams themselves, loom in much greater importance today than ever before. Their importance in the future is incalculable.

They are assets, in the same hard economic sense as acres yet unirrigated or heads of water yet unharnessed to a turbine. If we fail to preserve them, they are irreplaceably lost to us. Nor can we look elsewhere, because every conceivable drainage in the West is scheduled in the books for development, if not already on the drawing boards.

Quite aside from the economic reality of recreation, we dare not forget that it is an essential, integral part of our American way of life, as much a part of our culture our social system, as free enterprise itself. Outdoor recreation is an American heritage, it exemplifies to me the fundamental difference between our civilization and democracy and most of the rest of the world. We here in Colorado have been singularly blessed, and we shall be called upon to supply a larger and larger portion of the Nation's recreation needs.

Let me urge that Colorado and this committee continue in the lead, insisting that recreational use and all other related uses of our natural resources, present and potential, be given prime status in all river basin plans, along with irrigation, power, domestic water supply, and flood control.

Then, the multiple-purpose project, such as the initial phase of the Gunnison-Arkansas, if authorized, may fall into place, not as a factor limiting our future, but as a true and enduring asset.

The Colorado division, Izaak Walton League of America, at its 28th annual convention, held at Rifle, Colo., June 19, 20, 21, 1953, goes on record as being opposed to authorization of the Frying Pan-Arkansas diversion project until such time as it can be clearly demonstrated that such diversion will not threaten the future welfare and development of Colorado's western slope, and until such time as project plans incorporate adequate protection of fish, wildlife, and recreational values in the Arkansas Valley as well as on the western slope, and until the project shows itself to be economically feasible by adequate standards of evaluation of all resources affected.

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